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ABSTRACT

This project examined the impact of the University of Texas Health Science Center's Circuit Library Health Information Network (CLHIN) on availability and usage of medical information to health professionals and the effect of the promotion of online services, GRATEFUL MED and MEDLINE (flat rate). The project included a survey of physicians, analysis of use statistics of CLHIN services, and analysis of flat-rate password purchasers and use. Findings showed that differences in user profiles did not affect information usage; differences in information use between physicians in urban and rural areas are related to the use of MEDLINE and libraries; physicians did not search MEDLINE by themselves; the program has succeeded in providing information to an underserved area; CLHIN's impact in developing GRATEFUL MED users is not measurable; the generalizability of the CLHIN model of circuit librarianship is unclear; an effective circuit librarian and institutional liaison are critical to success; the project was successful in introducing users to online services; perceived value for price and convenience motivated purchase of the flat-rate password; the median reasonable flat-rate charge recommended by participants was $150; use of the flat-rate password varied by professional training and academic affiliation. Also included are 37 statistical tables, a report on medical information and availability, physician information needs surveys, a description of promotional and training activities, and a survey of flat-rate MEDLINE password holders. (Contains 39 references.) (KRN)

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Medical Information Availability and Usage in South Texas

Final Report

August 31, 1991

by

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MEDICAL INFORMATION AVAILABILITY AND USAGE IN SOUTH TEXAS

EXECUTIVE SUMMARY

BACKGROUND

In May 1990 the NLM's Office of Planning and Evaluation and the Briscoe Library of The University of Texas Health Science Center at San Antonio (UTHSCSA) launched a two pronged project to (1) examine the efficacy of the Circuit Library Health Information Network (CLHIN) for improving the availability and usage of medical information in the Lower Rio Grande Valley of Texas and (2) study the effect of the promotion of GRATEFUL MED and flat-rate access to MEDLINE on the usage of medical information. Physicians and other health professionals in five Texas counties were the focus of the study. Four counties (Cameron, Hidalgo, Starr, and Willacy) are located in the Lower Rio Grande Valley area of Texas on the Texas-Mexico border, an area which will be referred to as "the Valley". The fifth county, Bexar, is the location of the UTHSCSA which is the closest academic health science center to the Valley. All five counties have large hispanic populations and all or portions of each county have been designated as "primary care health professionals shortage areas".

The CLHIN was begun in September 1989 as a special project of the state funded and UTHSCSA managed South Texas Health Research Center with three participating institutions and a half-time librarian. By May 1990 the CLHIN had expanded to nine institutions and the librarian's position was increased to full-time. None of the CLHIN institutions had a professionally managed library and only one had a library collection of any size. The major health information resource for physicians in the Valley was the Texas Medical Association (TMA) Library in Austin. Other health professionals had no local resource. There had been a circuit librarian who periodically visited the Valley in the early 1980s through an Area Health Education Center of the University of Texas Medical Branch in Galveston. In October 1990 the CLHIN became one of the programs of the new federally funded Lower Rio Grande Valley Area Health Education Center (LRGV-AHEC).

The flat-rate MEDLINE password access project was an experimental project by the NLM to gather information regarding usage levels and search patterns to assist NLM in determining an appropriate charge mechanism for access to the MEDLARS databases. In the past, most vendors of databases, including the NLM, charged for database access based on connect time and number of records viewed. There were also substantial additional charges for telecommunications costs and print charges. This made it extremely difficult for searchers to budget for access. In fact, this difficulty has been seen as one of the most significant factors inhibiting usage of online databases. In response to these concerns NLM devised the pilot flat-rate MEDLINE project. NLM was interested in a number of issues: What are the differences in searching behavior of clinicians, researchers, students? Which databases are most often used? How many references are printed or downloaded for storage on local computers: And, most importantly, is $100 an appropriate charge per code for unlimited access? The UTHSCSA Library was interested in providing users with inexpensive access to the full MEDLINE database and considered the flat-rate project as an opportunity to do so without requiring an expensive investment in hardware and software.

The University of Texas Health Science Center at San Antonio (UTHSCSA) Library has a staff of 18 librarians and 33 support persons. It is among the busiest medical libraries in the United States and Canada in terms of use of services. In terms of expenditures the UTHSCSA Library ranked in the top 15% of the 144 libraries reporting to the 1991 Annual Statistics of Medical School Libraries. The UTHSCSA is composed of five schools—the Medical School, the Dental School, the School of Allied Health, the Graduate School of Biomedical Sciences, and the School of Nursing. About 2500 students are enrolled at the Health Science Center and there are about 600 medical housestaff.

METHODOLOGY

The project consisted of a needs assessment including a base-line survey of physicians, analysis of use statistics of CLHIN services, and analysis of flat-rate password purchasers and their use. Focus groups and telephone interviews were used to identify opinions of the value of the services and strengths and weaknesses. The preliminary report was reviewed with four consultants who were experienced with circuit library programs and outreach to unaffiliated health professionals.

NEEDS ASSESSMENT

The first step in the needs assessment was to consult demographic sources about the health care profile in the five counties. An inventory was also made of the health information resources in the five counties. The primary means of doing a needs assessment was a questionnaire survey which was used to develop a baseline for comparison of use. The survey used a modified version of the "Generic questionnaire for outreach enhancement projects" which had been developed at the NLM in February 1990. The population surveyed included the 627 physicians licensed to practice in Texas who were located in one of the four Valley counties. A random sample of 284 of the 2993 physicians in Bexar County was also surveyed in order to provide a comparison between physicians in an urban area with local access to a large medical library with the remote and partially rural Valley area which did not have local access to a basic medical library collection. These numbers were adjusted to 573 Valley physicians and 273 Bexar County physicians due to several reasons such as address changes and deaths. Thus 846 physicians were surveyed in 1990 with a response of 280 Valley physicians (48.9%) and 162 Bexar County physicians (52.2%).

Survey questions were in four broad areas: (1) information resource use; (2) MEDLINE and other data base use; (3) technology; and (4) professional practice information. Demographic information was taken from the May 1990 Texas State Board of Medical Examiners database of physicians licensed to practice in the state of Texas which was also the source of the addresses.

CIRCUIT LIBRARY HEALTH INFORMATION NETWORK (CLHIN)

During the period of the project the Circuit Librarian, Mary Jo Dwyer, M.A.L.S., continued her routine responsibilities of providing health care related information to the staff of the institutions which participate in the CLHIN. In August 1990 an assistant was hired to handle the clerical duties associated with the CLHIN and to assist in the record keeping for this project. At the end of the period studied (August 1991) the CLHIN participants included nine hospitals ranging in size from 49 beds to 372 beds and one UTHSCSA affiliated Family Practice Residency Training Center with 14 residents.

The records analyzed included a transaction log of reference and document delivery requests and the name, institution and occupation of the requester. For example, if Dr. X requested a MEDLINE search and three days later requested that six articles identified in the search be obtained, this would be logged as two transactions for Dr. X, a physician at Hospital Y. There were 1547 transactions requested by 436 persons during a 19 month period that were analyzed. Records were also kept on the number of MEDLINE searches that were run from October 1989 through November 1991 and the number of documents that were delivered from the UTHSCSA Library collection.

Six focus groups were held in June and July, 1991, with groups chosen to represent the various Valley cities in which the CLHIN participating hospitals were located. Three groups of physicians were convened, two groups of nurses, and one group which had both physicians, nurses and allied health personnel. Focus group questions were related to previous use, CLHIN access, use and value of CLHIN, and positive/negative features of the circuit library service and suggested changes. Telephone interviews were conducted in November 1991 with eight program administrators and two non-users. Interview questions were related to motivations for joining the circuit, positive program aspects, recommended changes, personal use of the service, and value. Non-users were asked questions about why they had not used CLHIN services.

FLAT-RATE MEDLINE PASSWORD ACCESS

The UTHSCSA Briscoe Library was approved in November 1989 to participate in the pilot project of the NLM to test the market for passwords for a set fee which provided unlimited use of the MEDLARS databases for twelve month period. The project was initially to start in March 1990 for a twelve month period but the start was delayed until April 1990 due to the unavailability of GRATEFUL MED software. Version 5 of the software was delivered on May 3, 1990 so the ending date for password use was April 31, 1991.

The terms of the project were that the UTHSCSA would purchase 300 passwords at $100 each, which could then be sold to any person who lived or worked in the area of South Texas located in the 512 telephone area code. There are approximately 6000 physicians in this 50 county area. The passwords were for individual use only although this would not be monitored. The UTHSCSA was approved to add a surcharge to the $100 if desired.

The flat-rate project was evaluated by analyzing the use of the passwords in comparison to the use of new passwords obtained during April to September 1990 by persons in Texas. A comparison of use was also made with the participants in the University of Washington's flat-rate MEDLARS project. In April 1991 participants were sent a renewal notice with options to (1) renew for a six month period at $150 with a cap of $500, (2) convert to a regular MEDLARS password, and (3) discontinue their password. Responses were received from 150 of the 243 for a 61.7% response rate. In the same mailing participants also received questionnaires about frequency of use, whether anyone else used their password, how many searches were run for other people, level of satisfaction, and opinion of possible charges for a flat-rate password. Responses were received from 143 of the 243 for a 58.8% response rate.

One focus group of physician users of flat-rate passwords was held in June at the UTHSCSA. Questions related to previous use, positive/negative features of GRATEFUL MED and suggested changes, reasons for MEDLINE use, and future use plans. Telephone interviews were conducted with eight persons who had used more than $1000 of search time and with 20 persons who did not use their password. Questions related to reasons for purchasing the flat-rate passwords, types of searches, importance of program as incentive to use MEDLINE, continued use after the program ended, opinions about GRATEFUL MED, library mediated searching, how articles were obtained, LOANSOME DOC, and suggestions for encouraging use of GRATEFUL MED.

PRELIMINARY REPORT REVIEW

A meeting was held in August 1991 to review the preliminary report of project results. Four consultants experienced with circuit library programs in other regions met in San Antonio with the Project Team and a representative of the NN/LM,SCR to discuss the report. The consultants' comments were extremely useful to the Project Team in preparing the final report.

CONCLUSIONS

The major findings of the needs assessment are as follows:

1. There is no evidence that differences in the health care profile affect the information usage of the physicians in the five counties. That is to say, the different types of patients seen and the types of illnesses did not appear to be dominant factors in information usage.

2. The statistically significant differences in information usage between the physicians in the Valley counties and the physicians in Bexar County are related to the use of MEDLINE and libraries. For both groups the primary information resources are personal collections of books and journals and consultation with colleagues as is true in most studies of physicians' information use. However, there were differences in use of libraries, MEDLINE and other databases, and awareness of information resources between the physicians in the Valley counties and Bexar County.

3. When asked why they did not search MEDLINE by themselves, physicians in both locations were consistent in their responses. The major reason that respondents indicated was that they did not know how to do MEDLINE searches by themselves. This response was consistent with there being no statistically significant difference in either groups' rating of their experience with using databases. These assessments of ability indicate that increased opportunities for training are needed, with a variety of options being available.

4. Although there was no difference between the availability of microcomputers or fax machines at office or lab between groups, there was a statistically significant difference between groups as to availability of microcomputers at home and at library. The differences were not large and should not affect promotion of GRATEFUL MED. Promotional material could include a discussion of type of personal computer and modem to purchase if a purpose of the computer was searching the medical literature.

The major findings of the evaluation of the CLHIN program are as follows:

1. The Circuit Library program in South Texas has been effective in providing health information to an underserved area. This success can be measured by the users and administrators' positive comments in focus groups and telephone interviews.

2. The effect of the Circuit Library program in developing GRATEFUL MED users in the Valley is not measurable. Although some Valley physicians purchased flat-rate passwords, none were recorded as using the service very much. Several users said they preferred the Circuit Librarian to do searches and had no desire to search if the librarian could do the search instead. We do not know how many Valley physicians have regular GRATEFUL MED passwords.

3. The Circuit Library program has created a dilemma of being a costly "success". The current method of funding the program does not provide adequately for increasing services. The formula used in financing the CLHIN must be reexamined before new institutions are included in the circuit.

4. The generalizability of the CLHIN model of circuit librarianship is not clear. More information is needed on the other circuit library programs and their utilization patterns in order to be able to judge the value of the CLHIN model.

5. The components of a successful circuit library program include (a) a circuit librarian with effective interpersonal communication and information access skills; (b) strong backup resources on which the circuit librarian can rely for consistent service, and (c) effective institutional liaisons as circuit institutions.

The major findings of the evaluation of the GM/STMP flat-rate MEDLINE password access project are as follows:

1. The project was successful in introducing people to GRATEFUL MED and self-searching of the full MEDLINE database. The change in ability of persons from "not experienced" in searching to various levels of experienced is statistically significant.

2. The major factors in motivating persons to purchase the flat-rate password were perceived value for price and convenience of access. These factors were mentioned both in the focus groups and interviews and in the written comments in the April 1991 survey.

3. The median "reasonable" charge recommended by participants for a flat-rate subscription was $150. Persons who used their codes a lot tended to indicate a higher charge than those who used the flat-rate access code less.

4. The use of the flat-rate password varied by professional training and academic affiliation. Search charges for the 243 password holders varied from zero to $16,377. The average search charge was $410. If the three passwords which had more than $7000 of use were excluded, the average charge would have been $281.

IMPLICATIONS

The results of the Medical Information Availability and Usage in South Texas project could be instrumental in influencing the NLM to embark on a program of research in medical librarianship in order to make information more accessible to health professionals. Such research could focus on outreach and the role of librarians, effective methods of promoting the use of MEDLINE, and an examination of how the NNLM resource libraries are prepared to cope with changing technological and economic forces.

The NLM should consider taking the lead in improving the general quality of applied library research by providing more guidance in research design, implementation and evaluation. In particular the topic of service effectiveness should be examined.

1. INTRODUCTION

The purpose of the "Medical Information Availability and Usage in South Texas" project was (1) to examine the efficacy of a circuit library program for improving the availability and usage of medical information in four counties of the Lower Rio Grande Valley of Texas and (2) to study the effect of the promotion of GRATEFUL MED and flat-rate access to MEDLINE on the usage of medical information in South Texas. The project had three components: (1) the information needs assessment, (2) the evaluation of the Circuit Library Health Information Network (CLHIN) program, and (3) the evaluation of the flat-rate MEDLINE password access program, the GRATEFUL MED/South Texas MEDLINE Project (GM/STMP).

The key component of the needs assessment was a baseline questionnaire survey of the use of information resources which was mailed to all physicians in the four Valley counties. A random sample of physicians in Bexar County was also surveyed in order to gain some perspective on whether the information usage practices of physicians were affected by location and proximity to an academic health sciences library. Bexar County is the county where The University of Texas Health Science Center at San Antonio (UTHSCSA) is located.

The second project component was the evaluation of the CLHIN service. This was accomplished through the quantitative review of the logs of requests and MEDLINE searches which are kept by the CLHIN staff and the statistics on document delivery which are kept by UTHSCSA Library staff. A qualitative assessment was obtained through focus group discussions of users, and through telephone interviews with administrators and non-users.

The third project component was the evaluation of the flat-rate MEDLINE password project which involved the sale of passwords for unlimited use of the MEDLARS databases from April, 1990 through April 1991. This evaluation included quantitative analysis of the usage of the passwords, including comparisons with use by new users of regular passwords and with participants in the University of Washington flat-rate MEDLINE project. Qualitative assessments were obtained through a questionnaire survey of persons who purchased the passwords, response to a renewal option for password continuation, one focus group discussion, and telephone interviews with persons who used more than $1000 of searches and with persons who did not use their password at all.

The CLHIN program was initiated in September, 1989 with funding from the State of Texas and is presently funded by participant contributions and federal funding through the Area Health Education Center (AHEC) funds of the Lower Rio Grande Valley AHEC. The UTHSCSA Library's participation in the pilot flat-rate MEDLINE project of the National Library of Medicine was approved in November, 1989 and the official start date for using the flat-rate passwords was April, 1990. The funding for the "Medical Information Availability and Usage in South Texas" project was approved in May, 1990.

The baseline questionnaire survey of information use was conducted between June, 1990 and October, 1990, including three follow-ups. The questionnaire survey on the flat-rate MEDLINE program was conducted in April, 1991, with no follow-up. The focus groups were conducted in June and July, 1991, and the telephone interviews were conducted in November, 1991.

Presentations on preliminary results of aspects of this project were given at South Central Chapter, Medical Library Association Annual Meeting in Shreveport, Louisiana in October, 1990; at the Medical Library Association Annual Meeting in San Francisco in June, 1991; and as a poster presentation at the American Library Association Annual Meeting in Atlanta in June, 1991. Various presentations about the CLHIN service and the project were made at AHEC Advisory Committee meetings.

The library team members involved in this project were responsible for service provision both in the Valley and at the Briscoe Library in addition to working on this project. Specific project team roles were as follows:

Virginia Bowden	Project direction and final report preparation
Megan Kromer	Project evaluation specialist, statistician, focus group facilitator, and telephone interviewer.
Pat Hawthorne	Project monthly reports and focus group arrangements
Janna Lawrence	Coordination of the flat-rate MEDLINE project
Rajia Tobia	CLHIN/Project Director
Anne Comeaux	Computer programming for data extraction from the TSBME tapes and questionnaire summaries
Evelyn Olivier	Preparation of promotional material for the GM/STMP
Mary Jo Dwyer	CLHIN Librarian in the Valley
Beverly Rocha	CLHIN Senior Administrative Clerk in the Valley
Patty Zuniga	Word processing of the report
Susan Beck	Graphics

The consultants who reviewed the preliminary report were as follows:

Donna P. Johnson	Library/Media Services Director Abbott-Northwestern Hospital, Minneapolis, Minnesota
Spencer S. Marsh	Biomedical Library Director University of South Alabama, Mobile, Alabama
Frederick C. Pond	Clinical Nursing Reference Librarian Dana Biomedical Library, Dartmouth-Hitchcock Medical Center Hanover, New Hampshire
Jocelyn C. Rankin	Medical Library Director Mercer University School of Medicine, Macon, Georgia

The advice and support of the National Library of Medicine's Office of Planning and Evaluation is gratefully acknowledged. Ms. Karen Wallingford, as Project Officer, was most helpful and prompt in obtaining supplementary information as needed. We also appreciate the participation in the project by Dr. Elliot Siegel, Dr. Barbara Rapp, and Ms. Rose Marie Woodsmall. The staff of

MEDLARS Management were also helpful in the flat-rate MEDLINE password project, particularly Ms. Kathy Eichenberger and Mr. Sheldon Kotzin.

The report that follows is a lengthy one. This has been an extensive project with a multitude of results, yet more could have been done. Parts of the report were written by different people so there are varying amounts of detail. In the discussions of each section we have tried to select those points that seem most important to us.

Virginia Bowden

2. PROJECT DESCRIPTION

The purpose of the "Medical Information Availability and Usage in South Texas" project was (1) to examine the efficacy of the Circuit Library Health Information Network (CLHIN) for improving the availability and usage of medical information in the Lower Rio Grande Valley of Texas and (2) to study the effect of the promotion of GRATEFUL MED and flat-rate access to MEDLINE on the usage of medical information. The project focused on physicians in five South Texas counties: Bexar, Cameron, Hidalgo, Starr and Willacy. The Briscoe Library of The University of Texas Health Science Center at San Antonio, which is located in Bexar County and hereafter referred to as UTHSCSA, contracted with the National Library of Medicine in May, 1990 to do this project. The four Lower Rio Grande Valley counties (Cameron, Hidalgo, Starr, and Willacy) henceforth will be referred to as the Valley counties. The area of South Texas includes some 50 counties.

2A. Research Questions

The following research questions guided the study.

1. **NEEDS ASSESSMENT**
   a. Does the health care profile differ among the five counties?
   b. Do any differences in the health care profile affect the information usage of the physicians in the five counties?
   c. What health related information resources are available to physicians in the five counties, how frequently are they used, and for what purposes?
   d. What health information resources are lacking in the five counties?

2. **CIRCUIT LIBRARY PROGRAM**
   a. What types of questions does the circuit librarian answer, and how?
   b. Who uses the circuit librarian's services at each institution and what is their satisfaction level?
   c. Are there differences between users and non-users?
   d. Is there any institutional change due to the circuit library program?
   e. Is there any individual change due to the circuit library program?

3. **GRATEFUL MED/SOUTH TEXAS MEDLINE "FLAT-RATE ACCESS"**
   a. What factors influenced persons to apply for a MEDLINE password?
   b. How does the use of MEDLINE by flat-rate participants compare to the usage by regular MEDLINE password holders?
   c. Do frequent users of NLM databases have different characteristics than infrequent users?
   d. How satisfied are these new users of the MEDLINE databases?

4. **GRATEFUL MED/MEDLINE CONTINUING EDUCATION COURSES**
   a. Do persons who receive training from either the UTHSCSA library staff (including the CLHIN librarian) or the Texas Medical Association staff use MEDLINE more often than persons who do not receive training?
   b. Are persons who receive training more satisfied with their use of the MEDLINE databases than persons who do not receive training?

2B. Objectives

The objectives of the project were:

1. To conduct a needs assessment of the availability and usage of medical information in the five counties.
2. To use three forms of intervention to improve the availability of medical information in the five counties:
    a. Circuit Library Health Information Network (CLHIN) program with a circuit librarian in the Lower Rio Grande Valley of Texas.
    b. GRATEFUL MED/South Texas MEDLINE "flat-rate" password access project which promotes the use of MEDLINE via GRATEFUL MED.
    c. GRATEFUL MED/MEDLINE continuing education courses which instructs persons on the use of MEDLINE via GRATEFUL MED.
3. To report the effect of the interventions on the availability and usage of medical information in the five counties.

2C. Assumptions

The first assumption was that physicians would be major users of the CLHIN services and purchasers of the GRATEFUL MED/South Texas MEDLINE flat-rate MEDLARS access passwords. This assumption allowed us to limit the baseline survey to physicians, a group for which a computer database of addresses and demographic and practice information was readily available.

The second assumption was that the information seeking patterns would be affected by local access to a large medical library. By surveying both Valley physicians and Bexar County physicians we could determine if such differences existed.

The third assumption was that it was acceptable to survey a sample of physicians in Bexar County even though the complete population of physicians in the Valley counties was surveyed. This decision was logistical as there were approximately 600 physicians in the Valley counties and over 2500 in Bexar County. We were also interested in behavior change in the Valley following the initiation of the CLHIN service, and no similar service had been initiated in Bexar County. We verified the appropriateness of this approach with a statistician. A sample size of 300 drawn from a population of 2,800 should provide a confidence level between 90 and 95%.

The fourth assumption was that training would positively affect the use of GRATEFUL MED and MEDLINE. We thought that physicians would be interested in attending workshops on MEDLINE, particularly if CME credit was available.

The fifth assumption was that this project would be extremely valuable to the UTHSCSA Library staff both for the results and for the experience gained in doing research in library problems in cooperation with NLM staff. We felt that although the CLHIN and the GM/STMP were only indirectly related, they were both part of a new approach to providing health information in South Texas and thus we were insistent that both should be studied.

The final assumption was that the results should be of more than regional interest and that review by a panel of experts in library outreach services would be very helpful in communicating the results of the project.

2D. Design intentions

The project was designed to be carried out by a team of practicing librarians assisted by an evaluation specialist. The use of practitioners had the advantage of familiarity with the project history and implications of results. However, the pressure of competing responsibilities entailed in maintaining library services in a large, complex academic health sciences center, contractor requests for additional follow-up, and staff turnover negatively impacted some project timetables.

The project was not designed to rigorously test the effects of study interventions on Bexar County and Valley physicians. When comparing the descriptive statistics between the groups of physicians, the research design supports comparisons only at the descriptive level. The project was also not designed to compare the circuit library program to the Grateful MED flat-rate password access program.

The study of the circuit library program concerned the efficacy of the service and did not address cost effectiveness issues or alternate means of service delivery.

2E. Methodology

Needs Assessment

The needs assessment was conducted in three ways. Published data sources were reviewed to see if there were differences in the health care profile between Bexar County and the Valley counties. An inventory of the health information resources in the Valley counties was compiled. Finally a questionnaire based on the generic NLM questionnaire was developed, pilot tested and modified, and mailed to a computer-generated random sample of licensed physicians in Bexar County and to all licensed physicians in the four Valley counties. Addresses were taken from the May 1990 tape of the Texas State Board of Medical Examiners (TSBME) database of physicians licensed to practice in Texas. This database contains demographic and practice information which is updated annually.

Interventions

The first of the three interventions to improve the availability of medical information was the Circuit Library Health Information Network of South Texas (CLHIN), which began service in November, 1989 at three Valley institutions. By July, 1991 there were ten participating institutions. The effects of the CLHIN were measured by the use statistics compiled by the CLHIN staff which included: brief descriptions of reference services, number of MEDLINE searches, and number of documents delivered. Six focus groups were conducted in the Valley counties among a variety of users. Demographic information on physician users of CLHIN services was compared to physician non-users. Hospital administrators and some non-users were interviewed.

The second intervention was the GRATEFUL MED/South Texas MEDLINE "flat-rate" password access project which was offered to persons in the fifty counties that constitute South Texas. Publicity for this project began in February 1990 and password use began in April 1990 and ended on April 30, 1991. Participants provided basic data when they purchased a password and were asked to complete a questionnaire at the end of the project. Purchasers were also given the opportunity to continue the password at a higher rate. Reports of the dollar value of use by each participant were received from the NLM. Information on the users of regular MEDLARS passwords which were issued to persons in Texas between April and October 1990 was also supplied by NLM.

The third intervention which was monitored was continuing education courses for GRATEFUL

MED instruction which were offered by UTHSCSA librarians, Texas Medical Association (TMA) librarians and CLHIN staff.

External Review

The preliminary report of the results of the baseline survey and the interventions was reviewed by a panel of four consultants at a two-day meeting in August 1991. [See Appendix A for a description of the consulting visit.]

3. NEEDS ASSESSMENT

3A. Health Care Profile

Several publications were reviewed to provide a picture of the areas which would be studied. The Texas Almanac provided geographic and demographic information, ethnicity, and poverty level as of 1988. The Bureau of Health Profession's Area Resource File provided information on the number of active physicians per 1000 population, the number of general hospitals, ambulatory visits, inpatient days, and infant mortality, using 1987 data. Texas Department of Health publications provided information on specific infectious diseases and also updated some of the information in the Texas Almanac.

Texas is a very large state, both in terms of land mass and population. The majority of the 17 million persons in Texas (54%) reside in only ten of 254 counties—Bexar, Cameron, Dallas, El Paso, Harris, Hidalgo, Jefferson, Nueces, Tarrant, and Travis. [1] As shown in Table 1 there are academic health science center libraries in four of the most populated counties: Bexar (University of Texas Health Science Center at San Antonio) , Dallas (University of Texas Southwestern Medical Center), Harris (Houston Academy of Medicine/Texas Medical Center Library) and Tarrant (Texas College of Osteopathic Medicine). El Paso has a branch of the Texas Tech University Health Science Center (TTUHSC) Library, and the Texas Medical Association (TMA) Library is located in Travis county. The three other academic health science libraries are at Texas A&M in Brazos County, the University of Texas Medical Branch (UTMB) in Galveston, and Texas Tech University Health Science Center (TTUHSC) in Lubbock. Table 1 indicates the ten largest counties, the three counties in which other academic health science libraries are located, and the two Valley counties which are part of the study but have small populations and for each of these indicates the population, percentage of Hispanic persons, poverty rate, major cities. Figure 1 shows the location of the four Lower Rio Grande Valley counties in relation to Bexar County and the cities in which major health science libraries are located.

BEXAR COUNTY, CITIES WITH ACADEMIC HEALTH SCIENCES LIBRARIES AND LOWER RIO GRANDE VALLEY COUNTIES

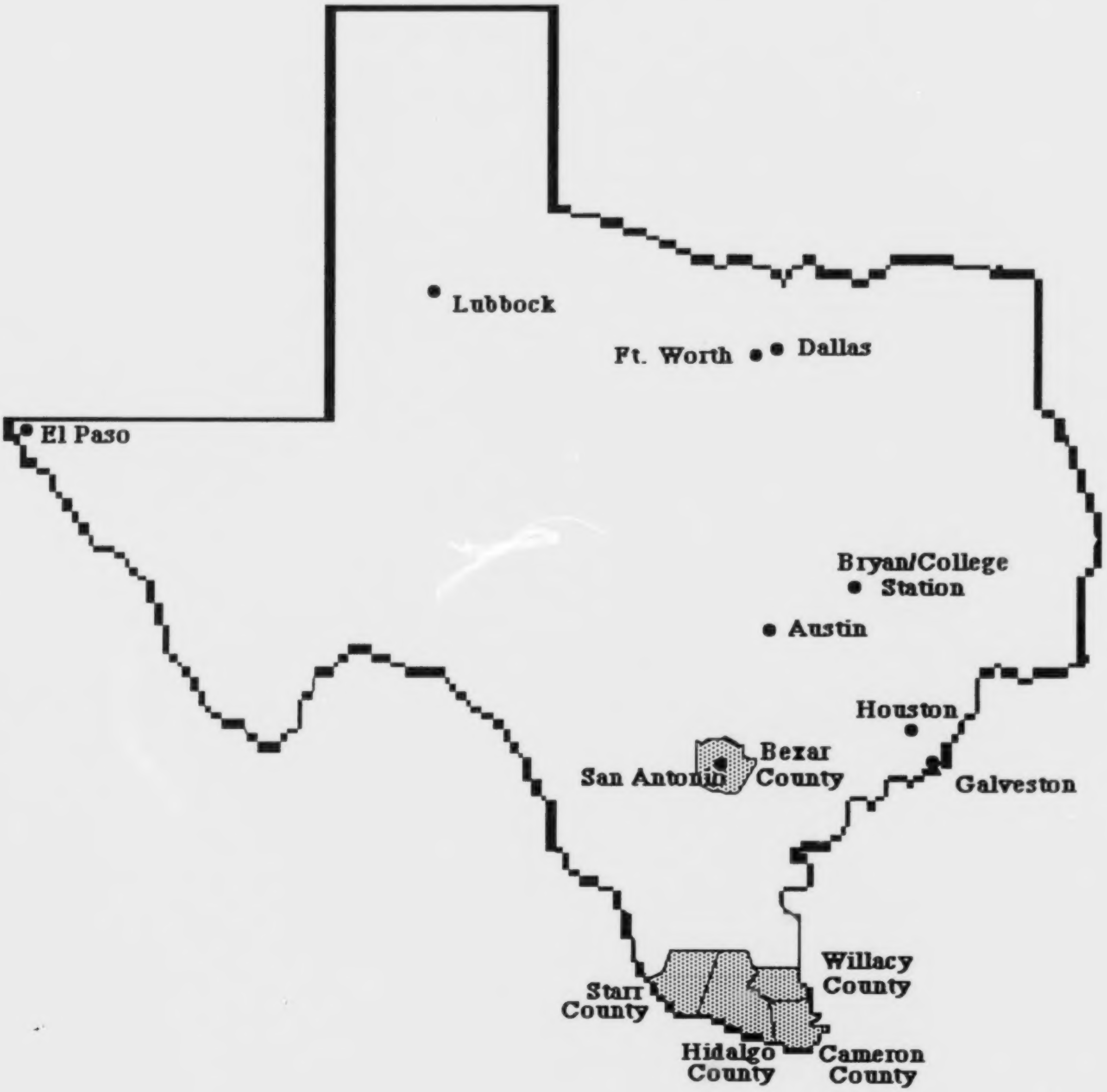
Lubbock
Ft. Worth
Dallas
El Paso
Bryan/College Station
Austin
Houston
Bexar County
San Antonio
Galveston
Willacy County
Starr County
Hidalgo County
Cameron County

FIGURE 1

Table 1
Largest Counties in Texas plus Counties with Academic Health Sciences Libraries and Lower Rio Grande Valley Counties

County	Population	Percent Hispanic	Poverty Rate	Cities
Ten largest counties				
*Bexar	1,186,690	47.6	22.4	San Antonio [UTHSCSA]
*Cameron	259,409	78.7	32.7	Brownsville, Harlingen, San Benito
Dallas	1,873,624	14.4	14.0	Dallas, Irving, Mesquite [UTSWMC]
El Paso	578,652	61.0	27.0	El Paso [TTUHSC branch]
Harris	2,782,414	18.2	16.3	Houston [HAM/TMC]
*Hidalgo	376,558	82.2	36.6	McAllen, Edinburg, Mission, Weslaco
Jefferson	247,714	04.6	17.7	Beaumont, Port Arthur
Nueces	296,527	50.5	23.9	Corpus Christi, Robstown
Tarrant	1,131,794	10.1	11.3	Fort Worth [TCOM]
Travis	559,173	20.1	18.4	Austin [TMA]
	9,292,555			
Selected counties				
Brazos	126,298	11.8	17.2	Bryan, College Station [Texas A&M]
Galveston	209,274	12.5	17.5	Galveston, Texas City [UTMB]
Lubbock	225,955	22.2	18.7	Lubbock [TTUHSC]
*Starr	36,473	97.4	51.6	Rio Grande City, Roma-Los Saenz
*Willacy	18,294	81.3	43.2	Raymondville, Port Mansfield

* Indicates part of current medical information project
Bracketed items indicate major health science libraries Data Source: Texas Almanac

The U.S. Department of Health and Human Services' Health Professional Shortage Area designation program has recognized 157 areas, population groups or facilities in Texas as experiencing a shortage of primary care physicians (family/general practice, obstetrics/gynecology, pediatrics and internal medicine). As shown in Figure 2, a portion of Bexar County has a shortage, Cameron and Hidalgo counties have portions of the population experiencing access barriers to existing primary care resources, and the complete population of Starr and Willacy counties have shortages. The location of federally funded community and migrant health centers in Texas are indicated on the map in Figure 3: Bexar County has three centers while each of the Valley counties has a center. Figure 4 shows the Texas counties without hospitals, with only one hospital, and with more than one hospital.

The system of health care in the Valley is a pluralistic mix of private and public facilities and funding sources. Most of the Valley hospitals are investor-owned. Valley health care resources have increased significantly in the last 25 years, although the per capita expenditure for the indigent population remains less than half what the national average is for all levels of income. [2] Public and patient education are mentioned by all as needs: education of people how and when (for what types of problems) to use services, on service availability, on compliance, and on care of diabetes. [3] Voluntary health services include Planned Parenthood of America, the Easter Seal Society, and the Holy Family Services, a center for prenatal care and birthing that operates under the auspices of the Catholic Church.

The Bureau of Health Professions Area Resource File provided information on physicians in relation to population, hospitals, hospitalization, medicare reimbursement, and infant mortality as shown in Table 2.

Table 2
Area Resource File Profile of the Five Counties

	Texas	Bexar	Cameron	Hidalgo	Starr	Willacy
Active MDs/1000 population	167	229	99	74	13	26
Number general hospitals	467	16	4	5	1	0
Ambulatory visits/1000 pop.	912	2266	354	251	128	0
Inpatient days/1000 pop.	830	1279	544	443	188	0
Average Medicare reimbursement/mo	79	74	56	42	55	67
Average suppl. insurance (1986)	34	43	30	26	31	33
Per capita income (1986)	13,485	12,632	7205	6799	4137	6371
Population/square mile (1987)	64	959	291	241	31	32
Infant mortality, 1982-86 rate	10.3	11.0	8.1	9.3	9.4	12.6

Data Source: Area Resource File

The 1991-92 Texas State Health Plan reported that the leading cause of death in Texas in 1988 was heart disease, which accounted for 33.2% of all deaths. Cancer was the second leading cause of death, accounting for 21.0%. Almost 9% of total deaths in Texas were caused by accidents, homicides, and suicides. High rates of unemployment and persons living in poverty increased the general dependence on public health and medical services. An estimated 18.3% of the Texas population live below the established federal poverty level. The Hispanic population in Texas experienced a 50.55% growth between 1980-89, and now comprise 23% of the Texas population.[4]

Information from the Valley Primary Health Care Review (PHCR) of Cameron, Hidalgo, and Willacy counties, which was performed in 1987-88 indicates that a full range of diagnostic and treatment services for acute illness as well as prenatal care and family planning is available from community health centers, private physicians, and hospitals. The PHCR notes that although ratios of physicians, dentists and hospital beds to population are low, there is evidence of some unused capacity of providers and facilities. Barriers to access include economics, transportation, culture, and knowledge of health plans and of health information. [5]

The border populations have a higher incidence of infectious diseases and diabetes than do the populations in the rest of Texas, and birth rates are also higher. [6] In contrast to the state incidence rate of 11.0 cases of tuberculosis per 100,000 population, in Cameron the rate was 31.8; Hidalgo 22.4, Starr 27.1 and Willacy 40.6. [7] The overall incidence rates for Hispanics was almost three times higher than that for whites and almost four times higher than that for blacks. [8] In 1989 Hidalgo county reported 20 cases of rabies and Starr county had 15; the next closest county in terms of number had six cases. [9] Over 80,000 persons in the Valley live in unincorporated settlements known as *colonias* which often lack septic tanks, sewers, or running water. [10] However, Hispanics in the Valley have lower death rates than do Anglos for all causes except homicides and perinatal conditions. [11] As indicated in Table 2, the infant mortality rate in Cameron, Hidalgo and Starr Counties is lower than in Bexar County and in Texas as a whole. There may be an artificially lowered infant mortality for Hispanics, due to births of infants in the U.S. who then are returned to Mexico. [12]

3B. HEALTH INFORMATION RESOURCES

3B.1. General Valley Health Information Resources:

The major health information resource for Valley physicians has been the Texas Medical Association (TMA) Library in Austin. All members of TMA are entitled to request, at no charge, literature searches from TMA librarians. Photocopying and prompt delivery by fax are available for a minimal fee. In 1990 TMA's three reference librarians conducted more than 9,000 literature searches, with half of the requests received from non-metropolitan areas of Texas. [13]

Two academic libraries in the Valley region have some health information resources. The University of Texas - Pan American at Edinburg received special funds to strengthen their nursing collection in 1989. The Arnulfo L. Oliveira Memorial Library in Brownsville currently serves Texas Southmost College and the University of Texas at Brownsville and is also the public library for the city of Brownsville. The Library has some health sciences journals in support of a licensed vocation nursing (LVN) program.

3B.2. CLHIN Institutions Health Information Resources

The ten institutions participating in the CLHIN program had no professional library support and have minimal medical library collections:

Brownsville Medical Center (BMC), (148 beds) maintains a current collection of 50 reference books housed in a four shelf bookcase behind locked glass doors. The bookcase is located in the physicians' lounge next door to the Medical Records Department. Physicians can obtain the key from medical records staff. There are also three current journal titles filed in the companion bookcase.

Dolly Vinsant Memorial Hospital (DVMH), San Benito, (49 beds) has no library.

Edinburg Hospital (EH), Edinburg, (98 beds) does not have a library.

Knapp Medical Center (KMC), Weslaco, (180 beds) dismantled the medical library, discarding most of the holdings due to extreme age. All useful materials were transferred to the Licensed Vocational Nursing School Library where there are now 200 books and 15 current journals.

McAllen Medical Center (MMC), (303 beds) has a medical library which is contained in a small room which is part of the physicians' lounge next to the Medical Records Department. The circuit librarian weeded the collection of obsolete books during the first months of 1990. A total of seven books remain on the shelves. There are five current journal subscriptions. A list of recommended books and journals was submitted to the administration by the library committee, but as of July, 1991, no action had been taken.

Rio Grande Regional Hospital (RGRH), McAllen, (198 beds) eliminated the medical library and transferred all books to the Education Department where they are shelved, together with nursing books, in a bookcase accessible through Education Department staff. There are approximately 250 books and five current journal subscriptions in this collection.

South Texas Family Practice Clinic (STFPC), McAllen, maintains a current reference collection for the medical students and residents. There are 12 current book titles, with another 50 older titles. Two journal subscriptions are received. The current reference tools are chained to the desk because the replacement became too costly for the clinic. The STFPC, an affiliated residency program of the UTHSCSA, was founded in 1977 and now has a three year training curriculum for

14 residents. There have been 47 graduates, 60% of whom have stayed in the Valley counties.

South Texas Hospital (STH), Harlingen (85 beds) recently moved the small library collection to a room outside the doctors' lounge. The mission of the South Texas Hospital was changed by the state in 1982 from that of a chest hospital to an acute care general hospital, primarily for indigent patients. The Circuit Librarian and Library Assistant have offices at South Texas Hospital. The hospital owns 77 journal titles and 99 books purchased by South Texas Hospital prior to the CLHIN program. Most books were published in the 1970's or 1980's. In addition to the South Texas Hospital collection, the Briscoe Library purchased 72 current textbooks and reference materials for the CLHIN program.

Valley Baptist Medical Center (VBMC), Harlingen, (372 beds) the largest hospital in the valley with highly specialized advanced care, has a library of approximately 2,000 books and 200 journal titles. At least 60% of the collection is out of date or consists of general education materials suitable for an undergraduate library. The video collection is extensive and is kept current by daily taping, classifying and shelving. Valley Baptist has an LVN program in cooperation with Texas Southmost College in Brownsville.

Valley Regional Medical Center (VRMC), Brownsville, (158 beds) has a small medical library located in the doctors' lounge. The hospital has subscriptions to thirty-one journal titles, some of which are in the doctors' lounge, others are located in several other areas. Most back volumes are not maintained older than 1985, with most titles retained from 1988 or 1989 to the present.

3B.3. Bexar County Health Information Resources

UTHSCSA Briscoe Library serves as the resource library in the National Network of Libraries of Medicine, South Central Region. Established in 1965, the UTHSCSA Library has a collection of over 198,000 volumes, subscriptions to over 2200 biomedical journals, and a staff of 52, including 18 professional librarians. The UTHSCSA Library has used the LIS integrated library system (including miniMEDLINE at no charge) since 1983 and offers end user access to several databases including Micromedex and MEDLINE as well as librarian mediated searching. The UTHSCSA Library serves as the library for the county-owned Medical Center Hospital and operates a branch at the county-owned Brady-Green Community Health Center in central San Antonio. The UTHSCSA has approximately 2500 students enrolled in the Schools of Allied Health, Dentistry, Graduate Biomedical Sciences, Medicine, and Nursing. There are about 1000 faculty and 600 residents.

Other health science libraries in San Antonio Extensive medical libraries are maintained at several military installations in San Antonio including the Brooks Air Force Base School of Aerospace Medicine, Wilford Hall U.S. Air Force Hospital at Lackland Air Force Base, U.S. Army Academy of Health Sciences at Fort Sam Houston, and the Brooke Army Medical Center at Fort Sam Houston. The Audie Murphy Veterans Administration Hospital has a library which serves satellite clinics in San Antonio and McAllen, Texas. The VA Library's holdings are recorded on the LIS system operated by the UTHSCSA Library. Three other general hospitals have libraries, ten do not. There is also a medical library at the Southwest Foundation for Biomedical Research, a private research institution.

Academic libraries There are about ten academic libraries in the greater San Antonio area. The two largest academic libraries are located at Trinity University and the University of Texas at San Antonio. There is an active consortium of libraries in the area which is known as the Council of Research and Academic Libraries of San Antonio (CORAL). CORAL has published a Union List of Periodicals since the early 1970s and currently maintains the database on OCLC. A cooperative circulation program and a delivery service are funded by CORAL members.

3C. BASELINE SURVEY

Questionnaire Development

The Physician Information Needs Assessment Questionnaire used in this project was based on the "Generic questionnaire for outreach enhancement projects" which had been developed at the National Library of Medicine in February 1990. This questionnaire was modified by a team of librarians at the UTHSCSA Briscoe Library and an evaluation specialist in consultation with NLM Planning and Evaluation staff during the Spring of 1990. The questions covered several major topic areas: 1) information resources (how frequently were specific resources used and what resources had been used prior to January, 1990), 2) use of MEDLINE (reasons for using or not using MEDLINE, databases used, how MEDLINE was accessed), 3) available technology, and 4) professional practice information.

Two versions of the questionnaire were developed — one for the Valley counties and one for Bexar County. The only difference between the two versions was that the Bexar County questionnaire asked about local medical library use and this was not included on the Valley survey. The questionnaire was given to a sample of physicians in both Bexar County and the Valley counties for field testing in May, 1990. The feedback from this sample was favorable and only a few editorial changes were made. The questionnaires and complete results may be found in Appendix B.

A computer tape was purchased from the Texas State Board of Medical Examiners (TSBME) to use for the physicians' addresses. The tape contained records for all physicians with current licenses to practice medicine in Texas who also resided in Texas. Since the TSBME database is updated monthly, the records were current as of May, 1990. The first mailing of the questionnaire took place in June, 1990. In order to maximize the response rate, a new copy of the questionnaire was included on the second and fourth mailings. The third mailing was a post card reminder without a questionnaire. A total of 911 questionnaires were in the first mailing. The 911 count was adjusted to 846 as 65 physicians did not have current addresses or were deceased, retired, or requested removal from the list. The number returned after each mailing is shown in Table 3. No reward was offered for the return of the questionnaire until the fourth mailing. The reward was entering the respondent's name in a drawing for one of the following prizes: GRATEFUL MED software, a tutorial session on literature searching using GRATEFUL MED, and a GM/STMP password.

Table 4
Practice Type
Comparison of Respondents and Non-respondents
(N=846)

	Direct Patient Care	Adminis-tration	Teaching	Research
Respondents	406 (50.9)	8 (88.9)	25 (69.4)	3 (100.0)
Non-respondents	392 (49.1)	1 (11.1)	11 (30.6)	0 (0.0)

In terms of location, Bexar County had a significantly higher response rate. That is, nearly 50% *more* physicians responded than did not respond in Bexar County. There were an equal number of respondents and non-respondents in the Valley counties. The final response rates for both locations are found in Table 5.

Table 5
Location by Response Pattern
(N=846)

	Valley		Bexar County		Total	
Respondents	280	(48.9)	162	(59.3)	442	(52.2)
Non-respondents	293	(51.1)	111	(40.7)	404	(47.8)
Total	573		273		846	

Description of Respondents

Overall, the majority of those who responded may be categorized descriptively as being between 31 and 50 years of age (61.8%), specializing in internal medicine or family practice (54.3%), working more than 40 hours per week (84.2%), involved in direct patient care (91.9%) and, within the Valley sample only, the majority were affiliated with a CLHIN facility (87.5%). Complete breakdowns of each of these variables are found in Tables 6 - 10.

Table 6
Age of Respondents
(N=442)

Age	Frequency	(Percent)
21-30 years	3	(0.7)
31-40 years	129	(29.2)
41-50 years	144	(32.6)
51-60 years	94	(21.3)
61-70 years	57	(12.9)
71-80 years	15	(3.4)

Table 3
Questionnaire Response Rate by Mailing

Mailing	Number	Adjustment	Responses	Cumulated Response	Return rate
1	911	<65>	239	28.3%	28.3
2	607		129	43.5	21.3
3*	478		15	45.3	3.1
4 **	463		59	52.2	12.7
			442		

* The third mailing was a postcard reminder only

** The fourth mailing included a copy of the questionnaire and had a reward

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Sampling and Response Rates

Because this study investigated physicians' needs in both Bexar County and the Valley counties, each location contained a population of physicians from which a sample could be drawn.

In Bexar County, there are approximately 2,993 physicians who are licensed to practice medicine in Texas. A random sample of 284 (9.5% of the total) was selected from this pool via a computer generated random-number table. Eleven physicians did not have current addresses or were deceased, retired, or requested removal from the list, leaving an adjusted sample of 273 Bexar County physicians who received surveys.

There were 627 physicians in the Valley counties in the database. Fifty-four physicians in the Valley counties were not surveyed because they did not have current addresses, were deceased, retired, or requested removal from the list, leaving an adjusted population of 573.

Comparison of Respondents and Non-respondents

Preliminary analyses were done to investigate whether or not there were demographic differences between those who responded and those who did not. Since the TSBME tape included information on all 846 individuals who were surveyed, a comparison was possible. The respondents and non-respondents could be compared on the following variables which were fields in the TSBME: location (Valley, Bexar County), age, specialty, practice type (direct patient care, medical teaching, administration, research), practice time (> 40 hours per week, 20-39 hours per week, 1-19 hours per week, 0 hours per week), and whether or not they had an affiliation with a CLHIN facility. Chi-square tests were used to determine the significance of the differences. A significance level of 0.05 was used to evaluate the significance of each test.

The only demographic differences found to be statistically significant were practice type (p<.009) and location (p<.004). For practice type, a greater number of physicians in administration, teaching and research responded than did not respond and an equal number of physicians in direct patient care responded as did not. Refer to Table 4.

Table 7
Specialty Type of Respondents
(N=442)

Specialty	Frequency	(Percent)
Medicine	159	(36.0)
Family Practice	81	(18.3)
Surgery	43	(9.7)
OB-Gyn	31	(7.0)
Radiology	30	(6.8)
Psychiatry	26	(5.9)
Other	72	(16.3)

Table 8
Practice Time of Respondents
(N=442)

Practice Time	Frequency	(Percent)
40+ hours per week	372	(84.2)
20-39 hours per week	34	(7.7)
1-19 hours per week	30	(6.8)
0 hours per week	6	(1.4)

Table 9
Practice Type of Respondents
(N=442)

Practice Type	Frequency	(Percent)
Direct Patient Care	406	(91.9)
Medical Teaching	25	(5.7)
Administration	8	(1.8)
Research	3	(0.7)

Table 10
Respondents Affiliation* with CLHIN Facility
Valley Counties only
(N=280)

CLHIN	Frequency	(Percent)
Affiliated	245	(87.5)
Not affiliated	35	(12.5)

*Affiliated means physician has admitting privileges at CLHIN hospital

3D. RESULTS OF BASELINE SURVEY

Responses to each of the questions found on the survey were compared between physicians in Bexar County and physicians in the Valley counties. These two groups were compared primarily to determine differences between physicians who have access to a large medical library (Bexar County) and physicians who practice in a remote area without local, direct access to medical information. Each comparison between groups was evaluated with a chi-square test of significance unless indicated otherwise. A significance level of .05 was used to evaluate the significance of each test. Significant differences are indicated with an asterisk.

VALLEY COUNTIES VS. BEXAR COUNTY

Demographic Differences
The two samples of physicians (respondents only) representing Bexar County and the Valley counties were compared on the following demographic variables: practice specialty, practice type, practice setting, and age.

The only variable yielding a significant difference between these two groups was specialty type ($p=.00015$). A greater percentage of Valley respondents were family practitioners while a greater number of Bexar County respondents had specialties in medicine and psychiatry. See Table 11.

Table 11
Specialty by Sample Location

Specialty	Valley (N=280)		Bexar County (N=162)	
*Medicine	94	(33.6)	65	(40.1)
*Family Practice	69	(24.6)	12	(7.4)
Surgery	26	(9.3)	17	(10.5)
OB-Gyn	19	(6.8)	12	(7.4)
Radiology	17	(6.1)	13	(8.0)
*Psychiatry	9	(3.2)	17	(10.5)
Ophthalmology	13	(4.6)	6	(3.7)
Anesthesiology	11	(3.9)	4	(2.5)
Other	22	(7.8)	16	(9.9)

*indicates statistically significant difference

Professional Practice Information

Physicians were asked to indicate their primary work place and primary professional activity. The results are displayed in Tables 12 and 13. (Some respondents indicated more than one primary work place and more than one professional activity).

In both locations, the majority indicated that their primary work place was a private practice setting. However, more physicians in the Valley counties (72.1%) indicated this than did those in Bexar County (50.6%). Bexar County physicians were more likely than Valley physicians to indicate an academic health science center as their primary work setting. This finding is obvious since there is no academic health science center in the Valley counties.

Table 12
Primary Work Place

Work Place	Valley (N=280)		Bexar County (N=162)	
* Private practice	202	(72.1)	82	(50.6)
* Academic Health Science Center	1	(0.4)	42	(25.9)
Hospital or Clinic	61	(21.8)	26	(16.0)
Other	13	(4.6)	16	(9.9)

*indicates statistically significant difference

Table 13
Primary Professional Activity

	Primary Professional Activity	Valley (N=280)		Bexar County (N=162)	
*	Patient care	266	(95.0)	118	(72.8)
*	Research	1	(0.4)	10	(6.2)
*	Teaching	4	(1.4)	15	(9.3)
*	Training	1	(0.4)	14	(8.6)
	Other	9	(3.2)	9	(5.6)

*indicates statistically significant difference

In terms of primary professional activity, the overwhelming majority of respondents in the Valley counties (95%) and in Bexar County (72.8%) were involved with patient care. This difference between the two locations was significantly different, however. In addition, more physicians in Bexar County indicated research (6.2%), teaching (9.3%) and training (8.6%) as their primary professional activity than did physicians in the Valley counties. Again, this is most likely due to affiliation with an academic health science center.

Patient Population

Several characteristics of the patient population were found to differ between physicians in the Valley counties and Bexar County. Valley physicians who responded to this survey were more likely to indicate that their patients were predominantly Mexican-American, rural, migrant and over 60 years of age. Thirty-seven percent of Valley physicians said that 75-100% of their patients were Mexican-American as opposed to only 6.7% of Bexar County physicians. Thirty-five percent of Valley physicians said at least 50% of their patients were rural as opposed to less than 5% of Bexar County physicians. The most dramatic difference was in terms of migrant patients. Forty-four percent of Valley physicians said that at least 50% of those served were migrant whereas 80% of the physicians in Bexar County said they had no migrant patients. Finally, 45% of Valley physicians said that at least 50% of their patients were over 60 years of age while only 36% of Bexar County physicians said the same. Refer to table 14.

Frequency of Information Resource Use

The primary information resource which was used either on a daily, weekly, or monthly basis was personal/office collection of books/journals (85.7% of Valley respondents and 82.1% of Bexar County respondents.) The second most frequent resource was consultation with colleagues (76.1% of Valley respondents and 72.2% of Bexar County respondents.) Statistically significant differences existed between Bexar County and Valley physicians for frequency of using 1) MEDLINE personally 2) a medical school library 3) the Texas Medical Association Library and 4) continuing medical education. See Table 15. A large proportion of physicians in the Valley counties reported they *never* used either MEDLINE on their own (44.6%) or a medical school library (52.2%) while only 23.3% and 10.1%, respectively, of the Bexar County physicians responded *never* to these items.

Table 14
Comparison of Patient Population Characteristics

Patient Characteristics

Percent of Patient Population	Mexican-American		Rural		Migrant		>60 years	
	Valley	Bexar	Valley	Bexar	Valley	Bexar	Valley	Bexar
0	2 (0.7)	3 (2.0)	5 (2.1)	13 (10.6)	13 (5.5)	80 (66.7)	15 (5.9)	21 (14.7)
1-24	11 (4.0)	49 (32.7)	64(27.2)	90 (73.2)	180(75.9)	40 (33.3)	49 (19.2)	24 (16.8)
25-49	22 (8.1)	48 (32.0)	82(34.9)	15 (12.2)	0	0	74 (29.0)	46 (32.2)
50-74	136 (49.8)	40 (26.7)	48(20.4)	4 (3.3)	42(17.7)	0	93 (36.5)	40 (28.0)
75-100	102 (37.4)	10 (6.7)	36(15.3)	1 (0.8)	2 (0.8)	0	24 (9.4)	12 (8.4)
Total	273	150	235	123	237	120	255	143

Table 15
Information Resource Use by Respondents

	MEDLINE by self		Medical School Library		TMA Library		CME	
	Valley	Bexar	Valley	Bexar	Valley	Bexar	Valley	Bexar
Daily	2 (1.4)	5 (3.8)	1 (0.7)	4 (2.7)	0	1 (0.7)	2 (0.8)	1 (0.7)
Weekly	10 (6.8)	16 (12.0)	2 (1.5)	26 (17.6)	3 (1.5)	0	35 (14.1)	24 (16.2)
Monthly	19 (12.8)	33 (24.8)	6 (4.4)	41 (27.7)	21 (10.3)	5 (3.5)	136 (54.6)	58 (39.2)
Rarely	51 (34.5)	48 (36.1)	56 (41.2)	62 (41.9)	98 (48.3)	19 (13.4)	62 (24.9)	41 (27.7)
Never	66 (44.6)	31 (23.3)	71 (52.2)	15 (10.1)	81 (39.9)	117 (82.4)	14 (5.6)	24 (16.2)
Total	148	133	136	148	203	142	249	148

The majority of Bexar County physicians (82.4%) reported that they *never* used the Texas Medical Association Library while only 40% of the Valley physicians reported the same. In terms of continuing medical education (CME), the majority (54.6%) of Valley physicians reported using CME on a monthly basis while physicians in Bexar County reported CME less frequently. In fact, 16.2% of the physicians in Bexar County reported *never* using CME. No definition of CME was included in the questionnaire.

These differences are in the expected direction. That is, physicians in the Valley do not have access to a medical library which may decrease their awareness of MEDLINE and increase their use of the Texas Medical Association Library and CME.

Method of obtaining articles prior to January, 1990

Physicians were asked to indicate how they had obtained articles prior to January, 1990. Retrospective data on how information had been obtained prior to CLHIN was important for comparison purposes for Valley physicians.

As can be seen from Table 15, the top three journal article sources for physicians in the Valley counties were mail from a library (36.1%), library (self or staff) (34.3%) and from a hospital staff member (25.0%). For those in Bexar County, the three top journal article sources were library (self or staff) (84.6%), hospital staff member (32.7%) and reprints from author (29.0%). (Note: respondents could indicate more than one method.)

Statistically significant differences did exist between the two groups and are indicated with an asterisk in Table 16. A greater percentage of the Bexar County sample reported that they got journal articles by going to the library personally or sending a staff member (84.6%) and by requesting reprints from authors (29.0%) than did the Valley sample. Physicians in the Valley counties reported that they received articles through the mail from a library (36.1%) or that they simply did not obtain the articles at all (22.5%).

Table 16
Method of obtaining articles prior to January, 1990
(Frequency and percent)
(N=442)

	Specialty	Valley		Bexar County	
*	Library (myself or staff)	96	(34.3)	137	(84.6)
	From a hospital staff member	70	(25.0)	53	(32.7)
*	Mail from a library	101	(36.1)	34	(21.0)
	FAX from a library	19	(6.8)	8	(4.9)
*	Reprints from author	50	(17.9)	47	(29.0)
	Reprints from commercial service	26	(9.3)	10	(6.2)
*	Did not obtain	63	(22.5)	7	(4.3)

*indicates statistically significant difference

Respondents were asked to estimate the number of articles they received in a typical 6-month period of time. The means and (standard deviation) for each group were as follows: Bexar County, 32.34 (57.06) and Valley, 10.68 (21.87). Bexar County physicians reported a significantly greater number of articles than did Valley physicians (t= 4.43, p< .0001).

MEDLINE Use

Respondents were asked to answer a series of questions if they used MEDLINE or other databases. Persons who did not use databases were instructed to skip to the Technology section of the questionnaire. For this reason there are a large number of "no response" answers in Tables 17 through 24. (See copy of questionnaire in Appendix B.)

Reasons for MEDLINE Use

Respondents were asked to indicate the specific reasons they had used MEDLINE. Since respondents could indicate more than one answer, percentages may sum to be greater than 100%. The percentage of respondents within each subgroup (Valley, Bexar County) that indicated a reason for using MEDLINE are shown in Table 17. The primary reasons for using MEDLINE for Bexar County physicians were preparing a lecture/paper (58.6%), patient care (43.8%) and staying current (42.0%). Physicians in the Valley counties gave as their primary reasons for using MEDLINE patient care (27.9%), staying current (24.3%) and preparing a lecture/paper (22.9%).

Reasons which had statistically significant differences between the two samples are indicated with an asterisk in Table 17. For each significant difference in Table 17, physicians in Bexar County were more likely to indicate it as a reason for having used MEDLINE than those in the Valley counties.

Table 17
Reasons for using MEDLINE
(Frequency and Percent)

	Reason	Valley (N=280)		Bexar County (N=162)	
*	Patient Care (in general)	78	(27.9)	71	(43.8)
	Confirm an opinion	51	(18.2)	39	(24.1)
*	Lecture/paper	64	(22.9)	95	(58.6)
*	Learn about a new field	40	(14.3)	51	(31.5)
*	Stay current	68	(24.3)	68	(42.0)
*	Research	21	(7.5)	34	(21.0)
	Legal or regulatory questions	35	(12.5)	14	(8.6)
	Other	11	(3.9)	5	(3.1)
	[No response]	163	(58.2)	52	(32.1)

*indicates statistically significant difference

Reasons for using MEDLINE that specifically related to patient care were also probed. These results are shown in Table 18. Again, respondents could indicate more than one answer and did not have to indicate patient care in general (as seen in Table 17) in order to respond to these more specific reasons.

Both Bexar County and Valley physicians indicated treatment, diagnosis and drug information as their top three reasons for using MEDLINE for patient care. For treatment and drug information, statistically significantly more Bexar County physicians than Valley physicians indicated these reasons for use.

Table 18
Patient Care Reasons for Using MEDLINE

	Reason	Valley (N=280)		Bexar County (N=162)	
	Diagnosis	70	(25.0)	52	(32.1)
	Physical signs/symptom	31	(11.1)	25	(15.4)
*	Treatment	76	(27.1)	76	(46.9)
	Lab tests	30	(10.7)	21	(13.0)
*	Drug information	40	(14.3)	38	(23.5)
	Referral	6	(2.1)	2	(1.2)
	Provide info to family	24	(8.6)	15	(9.3)

*indicates statistically significant difference

To further investigate the patient care reasons for using MEDLINE, only those physicians (N=406) who had indicated patient care as their primary professional activity were compared. These results are shown on Table 19.

Table 19
Patient Care Reasons for Using MEDLINE
(Patient Care Primary Activity only)

	Reason	Valley (N=276)		Bexar County (N=130)	
	Diagnosis	64	(24.1)	38	(32.2)
	Physical signs/symptom	28	(10.5)	17	(14.4)
*	Treatment	71	(26.7)	56	(47.5)
	Lab tests	25	(9.4)	16	(13.6)
*	Drug information	37	(13.9)	29	(24.6)
	Referral	5	(1.9)	1	(0.8)
	Provide info to family	22	(8.3)	10	(8.5)

*indicates statistically significant difference

The results with this group of physicians mirrors that which was previously found. A significantly greater proportion of Bexar County physicians indicated treatment and drug information as reasons for using MEDLINE for patient care concerns.

Use of other databases

This question was included in the survey in order to increase respondents' awareness that there are other databases besides MEDLINE. We were not surprised that over 80% of the respondents did not answer this question. Only one database, Micromedex, was used significantly more in Bexar County than in the Valley counties. To our knowledge the Micromedex drug information database is only available at the UTHSCSA and at a few San Antonio area hospitals. Table 20 displays the responses given by each sample for all databases listed.

Table 20
Use of other Databases
(Frequency and Percent)

	Database	Valley (N=280)		Bexar County (N=162)	
*	Micromedex	6	(2.1)	10	(6.2)
	Bioethicsline	0		0	
	Toxline	3	(1.1)	7	(4.3)
	Cancerline	8	(2.9)	8	(4.9)
	Aidsline	1	(0.4)	1	(0.6)
	PDQ	8	(2.9)	5	(3.1)
	Current Contents	3	(1.1)	5	(3.1)
	Other	15	(5.4)	8	(4.9)
	[No response]	242	(86.4)	131	(80.9)

*indicates statistically significant difference

Searching MEDLINE

Physicians were asked to indicate what system they used to access MEDLINE. The significant difference between the groups was in terms of miniMEDLINE from UTHSCSA. More physicians in Bexar County indicated using miniMEDLINE than did physicians in the Valley counties. The inclusion of miniMEDLINE as an option was due to the pilot survey in which respondents confused miniMEDLINE with MEDLINE. See Table 21.

Table 21
Systems Used to Access MEDLINE
(Frequency and Percent)

	Database	Valley (N=280)		Bexar County (N=162)	
	GRATEFUL MED	19	(6.8)	9	(5.6)
	NLM without GRATEFUL MED	1	(0.4)	3	(1.9)
	BRS Colleague	5	(1.8)	5	(3.1)
	MEDLINE on CD-ROM	3	(1.1)	4	(2.5)
*	miniMEDLINE from UTHSCSA	4	(1.4)	32	(19.8)
	Other	7	(2.5)	4	(2.5)
	Don't Know	10	(3.6)	5	(3.1)
	[No response]	242	(83.9)	110	(67.9)

*indicates statistically significant difference

Learning to search MEDLINE

Again, very few differences existed between Bexar County physicians and Valley physicians in terms of how they learned to search MEDLINE. Both groups reported using trial and error learning as well as having a friend or colleague teach them. However, more physicians in Bexar County indicated that they learned using a trial and error approach than did physicians in the Valley counties. It could probably be assumed that many were referring to learning to use miniMEDLINE by trial and error. The results are displayed in Table 22.

Table 22
Learning to Access MEDLINE
(Frequency and Percent)

	Database	Valley (N=280)		Bexar County (N=162)	
	Training workshop	4	(1.4)	6	(3.7)
	Computer tutorial	4	(1.4)	4	(2.5)
*	Trial and error	22	(7.9)	31	(19.1)
	Friend/colleagues	20	(7.1)	18	(11.1)
	Medical school course	2	(0.7)	3	(1.9)
	Other	9	(3.2)	8	(4.9)
	[No response]	236	(84.3)	111	(68.5)

*indicates statistically significant difference

Reasons for not requesting MEDLINE

Physicians were asked to indicate their reasons for not having MEDLINE searches done by either a librarian or by themselves. In terms of asking a librarian, physicians in Bexar County indicated their main reasons as 1) it is not needed (13.0%), 2) location is inconvenient (10.5%) and 3) they had to wait to have the search done (8.0%). Physicians in the Valley counties responded that 1) there was no local access (20.0%), 2) they had never heard of it (16.4%) or 3) the search was not needed (11.8%). There was no explanation as to what "not needed" meant, it is an option that has been included on various questionnaires. Statistically significantly more physicians in the Valley counties than in Bexar County indicated that there was no local access to having a MEDLINE search done or that they had never heard of it. See Table 23.

Table 23
Reasons for *not* requesting MEDLINE Searches from a Librarian
(Frequency and Percent)

	Database	Valley (N=280)		Bexar County (N=162)	
	Not needed	33	(11.8)	21	(13.0)
*	No local access	56	(20.0)	8	(4.9)
	Inconvenient location	21	(7.5)	17	(10.5)
	Inconvenient hours	14	(5.0)	9	(5.6)
	Have to wait to get search done	13	(4.6)	13	(8.0)
	Unsatisfactory results in past	5	(1.8)	5	(3.1)
	Cost	11	(3.9)	11	(6.8)
*	Never heard of it	46	(16.4)	8	(4.9)
	Other	18	(6.4)	6	(3.7)
	[No response]	112	(40.0)	99	(61.1)

*indicates statistically significant difference

When asked why they did not search MEDLINE by themselves, physicians in both locations were consistent in their responses. In both cases the major reason that respondents indicated was that they did not know how to do MEDLINE searches by themselves. More physicians in Bexar County indicated a lack of time as a reason for not doing MEDLINE searches on their own (22.8%) than did those in the Valley counties (14.3%). See Table 24.

Table 24
Reasons for *not* doing MEDLINE Searches by Yourself
(Frequency and Percent)

	Database	Valley (N=280)		Bexar County (N=162)	
	Not needed	27	(9.6)	15	(9.3)
	Don't know how	78	(27.9)	39	(24.1)
*	Not enough time	40	(14.3)	37	(22.8)
	Lack of equipment	60	(21.4)	23	(14.2)
	Cost	17	(6.1)	14	(8.6)
	Never heard of it	44	(15.7)	8	(4.9)
	Other	14	(5.0)	6	(3.7)
	[No response]	82	(29.3)	70	(43.2)

*indicates statistically significant difference

Technology

Physicians were asked to report on the availability of microcomputers, modems, FAX machines and their experience in working with computer databases. Physicians in Bexar County were more likely to have access to microcomputers in the office/lab, at home, and in a local library. Refer to Table 25.

Table 25
Availability of Microcomputer
(Frequency and Percent)

	Person/place	Valley (N=280)		Bexar County (N=162)	
	You, at office or lab	127	(45.4)	85	(52.5)
*	You, at home	90	(32.1)	74	(45.7)
*	You, at library	26	(9.3)	49	(30.2)
*	Your staff, at office	85	(30.4)	68	(42.0)
*	Your staff, at library	12	(4.3)	33	(20.4)

*indicates statistically significant difference

There were no differences in terms of the availability of modems at home or at the office or in terms of FAX machines. These responses are shown in Table 26.

Table 26
Availability of Modem
(Frequency and Percent)

	Valley (N=277)		Bexar County (N=160)	
Modem, at home	62	(22.4)	38	(23.8)
Modem, at office	118	(42.9)	70	(44.3)
FAX machine	149	(53.6)	99	(61.9)

Finally, more physicians in the Valley counties considered themselves to be inexperienced database users than those in Bexar County. See Table 27.

Table 27
Experience with Databases
(Frequency and Percent)

Experience level	Valley (N=277)		Bexar County (N=160)	
Very experienced	4	(1.5)	10	(6.5)
Somewhat experienced	43	(16.1)	32	(20.8)
Not very experienced	59	(22.1)	46	(29.9)
Not at all experienced	161	(60.3)	66	(42.9)
[No response]	13	(5.0)	8	(5.0)

3E. NEEDS ASSESSMENT DISCUSSION

Health Care Profile

The health care profile of the Valley counties differs from the profile in Bexar County in several ways. Bexar County is more densely populated than the Valley counties, with a much lower percentage of Hispanics in the population, lower poverty rate, more physicians per 1000 residents, proportionately more hospitals, and thus, more hospital-based health care utilization. Valley counties have a higher incidence of infectious diseases than other areas of Texas, particularly in terms of tuberculosis, rabies, and hepatitis. The characteristics of the patient populations also vary as Valley physicians responded that their patients were more likely to be Mexican-American, rural, migrant workers, and over 60 years of age whereas this was not the case with Bexar County physicians. In both locations more than 70% of the physicians were involved in patient care. Although more physicians in Bexar County indicated that research, teaching, and training were primary professional activities, a statistically significant larger proportion of Valley physicians were involved in direct patient care.

Health Information Resources

The available health information resources are much greater in Bexar County than in the Valley Counties. The location of the UTHSCSA Library in Bexar County with over 190,000 volumes, a multitalented professional staff, and free access to miniMEDLINE results in a level of local access that cannot be duplicated in the Valley without major, continuing expense. Although there are several medium sized hospital libraries in Bexar County, many of the hospitals in Bexar County are as lacking in library resources as are the Valley hospitals. Physicians who are members of the Texas Medical Association have access to the TMA Library in Austin where librarians have traditionally provided MEDLINE searches at no charge.

Physician Survey

A questionnaire survey was mailed to all Valley physicians and a sample of Bexar County physicians between July and October, 1990. The response rate from the Valley was 48.9% (280) which was statistically significantly lower than the response of 59.3% (162) from Bexar County. One factor in the lower response rate may be the large number of surveys which the Valley physicians receive since this area has been studied repeatedly. "A continuing complaint regarding research along the border is that they are researched to death but see no resultant services." [14]

There were no statistically significant differences between the Valley and Bexar County physicians in the primary information resources used on a daily or weekly basis: (1) personal/office collections of books and journals and (2) consultation with colleagues. These findings are consistent with reviews of health professionals' information usage by Stinson and Mueller [15], Northup et al [16], Osiobe [17], and Gruppe. [18]

There were statistically significant differences between physicians in the Valley and in Bexar County in their use of MEDLINE by self, use of a medical school library, use of the TMA library, and use of CME courses for obtaining information. That Bexar County physicians were more likely to use MEDLINE themselves is consistent with the results of a 1986 study of characteristics of early adopters of end-user online searching in the Canadian health professions[19]. Marshall found that the typical adopter was living in a large urban center, was in a group practice, and was hospital-affiliated, and she concluded that the findings supported the importance of interpersonal networks in the adoption of innovations.

It is not surprising that Bexar County physicians were significantly more likely to use a medical school library since the UTHSCSA library is located in Bexar County. Similarly the finding that the Valley physicians used the TMA Library significantly more than the Bexar County physicians was also expected. That the Valley physicians reported using CME as an information resource significantly more than did the Bexar County physicians was surprising. However, this finding is consistent with a 1983 study by Stross of 85 physicians in small community hospitals[20]. Stinson also reported that those regions where hospitals were actively employing health professionals to develop, schedule, and advertise continuing education courses were also the regions where the health professionals' responses indicated a greater use of continuing education[21].

A statistically significant larger number of Valley physicians than Bexar County physicians were unaware of MEDLINE or did not request MEDLINE from a librarian because of lack of local access. However, both Valley and Bexar County physicians' main reason for not doing MEDLINE by self was "don't know how [to use]". There was no statistically significant difference by location with the respondents' rating of their experience with databases, with over 42% of both groups considering themselves "not at all experienced." Shumway, Jacknowitz, and Abate studied physicians', pharmacists' and nurses' attitudes toward the use of computers to access drug information and concluded that the lack of computer use by physicians probably does not represent resistance, but may be attributed to lack of familiarity and work-style. [22]

For those that used MEDLINE either by themselves or with someone else doing the searching, patient care was the major reason. The survey subdivided patient care reasons into seven categories. Of these the three major uses for both groups were (1) treatment; (2) diagnosis; and (3) drug information. The Bexar County physicians used MEDLINE significantly more than the Valley physicians for patient care reasons, particularly for treatment and drug information. These topics are consistent with the findings of Woolf and Benson [23], Covell et al [24], and Williamson et al. [25]

Personal access to a microcomputer at office or lab and modems was not statistically different for either group. Over 42% had modems at the office, and over 22% had modems at home. A 1987 survey of American College of Obstreticians and Gynecologists members indicated that over 50% use or plan to use computers in their practice. [26] Of the 49% who did not perceive the need to use computer technology, one-fifth indicated that with more information, they could conceivably change their minds. Bexar County physicians were statistically significantly more likely to have access to a microcomputer for personal use at home or library or for staff use at office or library. There was no statistically significant difference between the two groups in the availability of fax machines, with over 53% of both groups having a fax machine.

Bexar County physicians gave lack of time as a reason for not doing MEDLINE searches by self statistically significantly more than Valley physicians checked this reason. Williamson reported that physicians in solo practice indicated that finding the time to look for information was less of a problem than did physicians in other practice settings. [27] "Lack of time" is a very subjective reason for not doing something. Covell, Uman, and Manning in a study of California internists found that "reported use of information sources" was different from "observed use". [28] In their study the physicians believed they used print sources more than they were observed to do.

3 F. NEEDS ASSESSMENT CONCLUSION

Contrasting the health care profile, the health information resources, and the self-reports of physicians between the Lower Rio Grande Valley counties and Bexar County helped to give some perspective on the needs of the areas. There are major differences in health care profiles and health information resources between the two areas, but the overall differences in physicians' self-reported use of information are not great.

The similarities of the results of the baseline surveys with other studies, the sense that the Valley physicians resented questionnaire surveys, and the logistical difficulties of surveying, convinced the Project Team that it was advisable to forego doing a follow-up survey in a short six to eight month time frame. The Project Team instead agreed to rely on focus groups and telephone interviews to measure the effect of the CLHIN and flat-rate MEDLINE password access programs for improving access to medical information in the Valley.

4. CIRCUIT LIBRARY HEALTH INFORMATION NETWORK (CLHIN)

4A. Overview

The Circuit Library Health Information Network (CLHIN) program, which is managed by the Briscoe Library of UTHSCSA, began in September, 1989 with funding from the South Texas Health Research Center (STHRC). STHRC was a special state appropriation in FY 1990-91 to establish health-related educational and research programs in the Lower Rio Grande Valley area of South Texas. In October, 1990 the STHRC funding for the CLHIN was replaced by funding from the federal Area Health Education Center (AHEC) for the Lower Rio Grande Valley.

The initial plan for the CLHIN program was to provide library and information services to three institutions in McAllen and Harlingen: the UTHSCSA affiliated family practice program in McAllen, McAllen Medical Center, and the South Texas Hospital in Harlingen. The CLHIN program was planned around the talents of Ms. Mary Jo Dwyer, a medical librarian who had recently moved to San Benito, Texas in the Valley (Cameron County). Ms. Dwyer had many years of experience with the American Medical Association library and as the circuit librarian for the Circuit Rider Health Information Service (CRHIS) of the Victoria College/University of Houston-Victoria based in Victoria, Texas.

Ms. Dwyer was employed by the UTHSCSA in September, 1989 on a half-time basis. She immediately began discussing the circuit with Valley hospital administrators. The fee for participation in the CLHIN was set at $1000 for each 100 beds in the hospital, although the anticipated income only covered a portion of the costs of operating CLHIN. Memorandums of agreement defining obligations for both the CLHIN librarian and the participating institution were signed by all participants. By January 1991 there were 10 institutions participating in the CLHIN program and two more may join in 1992. Concerns about JCAHO accreditation were major incentives for the hospital administrators' interest. Ms. Dwyer began to work full-time for CLHIN in April, 1990 and an administrative assistant was hired in August, 1990. In 1990-91 AHEC funding was also used to employ one library clerk at the UTHSCSA library who assists with CLHIN document delivery requests and other responsibilities. The funding of the clerk helps to offset the administrative time spent by UTHSCSA staff on the project.

4B. CLHIN USAGE

Usage of the CLHIN services, most directly measured by MEDLINE searches and documents delivered to CLHIN from the UTHSCSA Library, has increased dramatically from 12 searches in October 1989 to a high of 183 in April, 1991, as shown in Table 28.

Table 28
CLHIN Searches and Documents

	Searches			Documents		
	89-90	90-91	91-92	89-90	90-91	91-92
Sept	0	132	167	0	314	489
Oct	12	107	157	30	493	397
Nov	27	95	123	94	335	347
Dec	33	76		83	128	
Jan	24	80		167	291	
Feb	40	150		257	430	
Mar	45	119		210	475	
Apr	41	183		237	398	
May	48	122		204	373	
June	44	107		339	364	
July	72	108		148	249	
Aug	111	104		444	309	
Total	497	1383		2213	4159	

Delivery of documents includes transmission of request, receipt of request, pulling item from shelf, photocopying item, sending item via mail or fax; thus it is a labor-intensive activity. In comparison with the interlibrary loan service of the UTHSCSA Library, in FY 90-91 the UTHSCSA Library received 10,865 interlibrary loan requests of which 7,556 items were supplied to 929 libraries across the nation. During the same time period, the 10 CLHIN participating institutions borrowed 4159 documents, which is 55% of the total interlibrary loan requests filled by the UTHSCSA Library. An increase of this magnitude is a significant work load to add to any interlibrary loan department.

The CLHIN staff keeps a log of reference requests which is sent to the UTHSCSA Library monthly. These logs have been cumulated, and provide a picture of the types of requests received. Between November 1989 and June 1991 (July, 1990 records were lost), there were 1547 recorded requests by 436 persons for 14 institutions. The ten CLHIN institutions represented 1517 of the requests. Table 29 shows the requests by institution. The Valley Baptist Medical Center, which had the largest amount of use, was also a CLHIN participant for fewer months than all other institutions except Edinburg Hospital.

Table 29
CLHIN Requests by Institutional Affiliation
(19 month period in 1989-91)
(N=1547)

Institution	Beds	Requests	Frequency	Institution
BMC	148	112	7.2%	Brownsville Medical Center
DVMH	49	91	5.9%	Dolly Vinsant Memorial Hospital - San Benito
EH	98	60	3.9%	Edinburg Hospital
KMC	100	195	12.6%	Knapp Medical Center - Weslaco
MMC	303	159	10.3%	McAllen Medical Center
RGRH	198	198	12.8%	Rio Grande Regional Hospital - McAllen
STFPC	n/a	44	2.8%	South Texas Family Practice Center - McAllen
STH	85	118	7.6%	South Texas Hospital - Harlingen
VBMC	372	352	22.8%	Valley Baptist Medical Center - Harlingen
VRMC	158	188	12.2%	Valley Regional Medical Center -Brownsville
Other		30	1.9%	

Table 30 shows the requests by the requestors' professional status. Usage by physicians and nurses was almost equal at 42.7% and 42.4% respectively. Usage by hospital administrators was 5.9%.

Table 30
Summary of CLHIN Requests by Requester's Professional Status
(19 month period in 1989-91)
(N=1547)

Admin = 91
Art = 1
Auxiliary/Volunteer = 1
Chaplain = 6
Dietitian = 8
DDS = 9
Laboratory = 17
Library = 1
MD = 660
Medical records = 10
MSW = 2

Phys Assist = 3
PhD = 2
Pharmacist = 30
Physical Ther = 9
Public = 4
RN/LVN = 656
Student = 19
Rad Tech = 9
Resp Ther = 2
None given = 7

Two hundred forty-five physicians who responded to the baseline survey were affiliated with a CLHIN institution. (See Table 10). Of these 133 had been recorded as asking for service from the CLHIN program. Using the demographic information provided by the Texas State Board of Medical Examiners, this group of physicians (users of CLHIN) was compared to those who had not used the circuit librarian (N=112) on the following variables: primary professional activity, number of hours worked per week, age and specialty. Chi-Square tests were used to determine the significance of the difference. A significance level of .05 was used to evaluate the significance of each test. There were no statistically significant differences between these two groups. Of those who had used the circuit librarian, all (100%) indicated that their primary professional activity was patient care and 94.7% indicated that they worked more than 40 hours per week. Specialties were as follows: medicine (36%), family practice (20%), surgery (17%), pathology (8%), ob-gyn (6%) and other (12.1%). Age breakdowns were as follows: <30 yrs (0.8%), 31-40 yrs (38.3%), 41-50 yrs (33.1%), 51-60 yrs (17.3%), and >61 yrs (10.6%).

Table 31 shows the number of requests per person. There has been no follow up on the reasons that a large percentage of requesters have made three or fewer requests. Since many requests are funneled through the CLHIN liaison at each hospital, it is possible that the requester's identity and professional status is incorrect. When analyzed by month and institution, the requests did not exhibit increasing use over time.

Table 31
CLHIN Requesters by Number of Requests Per Person
(N = 436)

Number of Requests	Number of Persons	Percent of Total
1	181	41.5
2	83	19.0
3	46	10.6
4	29	6.7
5	21	4.8
6	16	3.7
7	16	3.7
8	8	1.8
9	6	1.4
10	4	0.9
11	6	1.4
12	5	1.1
13	2	0.5
14	2	0.5
15	1	0.2
16	2	0.5
17	1	0.2
18	1	0.2
27	1	0.2
31	1	0.2
35	2	0.5
37	1	0.2
47	1	0.2

4C. CLHIN FOCUS GROUPS

Six focus groups on the CLHIN program were conducted by Dr. Megan Kromer, UTHSCSA Evaluation Specialist. These groups were chosen to represent the various Lower Rio Grande Valley cities in which CLHIN participating hospitals were located. Two pilot focus groups were held in June, 1991 at Knapp Medical Center in Weslaco. One group consisted of allied health personnel and the other group was primarily made up of physicians. One focus group was held at each of the two hospitals in Brownsville, with one group representing nurses and the other group representing physicians. Two focus groups were originally scheduled at McAllen Medical Center; however, a focus group of nurses had to be cancelled due to the JCAHO accreditation site visit. A focus group of physicians in McAllen was held as originally scheduled but with a very small number of attendees. The CLHIN base hospital in Harlingen, South Texas Hospital, was the site of a focus group consisting of both physicians and allied health personnel.

The following questions were used to conduct the focus group:

Previous Use

1. Tell me how you obtained library information in the past...1990 and earlier.

Accessing CLHIN

2. How did you first hear about the circuit librarian service?
3. How do you access the circuit librarian services?
4. How do you refer to this service, that is, what do *you* call it?

Actual Use and Value of CLHIN

5. In what ways have you used the service?
6. Describe how the service has helped you provide better patient care.
7. How has the service made differences in treatment decisions?
8. Describe how the service has helped you in professional activities such as teaching, publishing, presentations, CE, etc.)

Positive/Negative Features of the Circuit Librarian service and Suggested Changes

9. What do you like best about the service?
10. What services would you like to see added?
11. What do you like least about the service?
12. How would you change the program to make it better?
13. How would you encourage more people to use the service?

4C. 1. Knapp Medical Center Focus Group — Nurses
Thursday, June 27, 1991, 9 - 10 a.m.
9 participants (7 nurses, the medical director and program liaison)

Previous Use

Nurses reported getting information in a two ways:

- writing/phoning the Texas Medical Association library; and
- using private collections and journal subscriptions.

They noted that personal collections were lacking and that it took up to two weeks to get information from the Texas Medical Association.

Accessing CLHIN

Everyone present said that they had first learned of the circuit librarian by either attending a general staff meeting where it was announced, reading about it in the hospital newsletter or by word of mouth. These nurses all knew to contact Mary Jo Dwyer through the hospital liaison, Becky McDaniel. They also had Mary Jo's schedule so that, in an emergency, they could call her at whatever hospital she may be working on that particular day. Some had even phoned Mary Jo at home.

Use of Circuit Librarian

- helping the LVN school organize their library by weeding, categorizing and giving students lectures on how to use the library;
- searching and interlibrary loan requests;·
- justifying purchase of new technology;
- developing policies and studying current trends;
- finding information on quality management and assurance methods;
- finding audio visual materials;
- developing patient education materials; and
- assisting with school assignments.

The nurses said that they used the librarian for help on a number of school assignments; without Mary Jo's help a number of them felt that they would not be able to continue in their education given the lack of library resources in the Valley.

The medical director stated that this program provides the institution with a resource that they would never be able to afford otherwise. He also stated that he hoped that "any thought of promoting Mary Jo out of the Valley would be quickly squelched."

Providing Better Patient Care

- The nurses stated that using the librarian program helped them develop better nursing procedures and policies.
- Information that was requested was often inserted into the patient's chart.
- One person stated that she had used the service for a personal matter. Her granddaughter has a metabolic disease and had been in the hospital every other week since birth. Since treatment modification due to information found with Mary Jo's help, the child had not been in the hospital for two months.

Positive / Negative Features

The most positive feature mentioned by this group was the convenience. Mary Jo is always accessible. They would like to see the program expanded since they felt they would benefit from having Mary Jo 'on location' for a longer period of time. Suggestions for encouraging use included keeping the announcement in the newsletter and putting notices on the bulletin boards.

4C. 2. Knapp Medical Center Focus Group — Physicians
Thursday, June 27, 1991, Noon - 1 p.m.
7 participants (5 physicians, the medical director and program liaison)

Previous Use

Physicians reported the same methods of getting information as did the nurses:

- writing/phoning the Texas Medical Association library; and
- using private collections and journal subscriptions.

Accessing CLHIN
Everyone present said that they had first learned of the circuit librarian through Becky McDaniel, the hospital liaison. The physicians tended to contact Becky with their request and then Becky would contact Mary Jo.

Use of Circuit Librarian
Physicians used the circuit librarian services primarily to find information on new technologies and treatments. Information was never requested for help in diagnosing a problem. Being able to obtain this information on treatment modalities gave the physicians more confidence in trying new things. They also put the information they received into the patient chart as a matter of routine. They felt this was good for legal reasons, but also knew that anyone who picked up the chart would know why the physician decided to take a particular action and would learn from it.

Positive / Negative Features
The most positive feature mentioned by this group was that it was a complete service and made a tremendous difference in a rural area. The greatest difference between the circuit librarian and calling TMA was the personal contact. It was extremely helpful to be able to talk with someone and get clarification. One physician said he used MEDLINE every day in his residency program in Washington, D.C. When he came to the Valley three years ago, he suddenly had no access. He was very glad to see this service come to the Valley and he uses it often. One addition the physicians would like to see is more GRATEFUL MED training. The training class had been held in Harlingen and this was not convenient for the physicians in Weslaco. They would like to be able to access MEDLINE on their own and would appreciate more training.

4C. 3. McAllen Medical Center Focus Group — Physicians
Wednesday, July 10, 1991, Noon - 1:30 p.m.
2 participants [28 invited]

Previous Use
Prior to the establishment of the CLHIN program, both participants said they often went without information in many cases or relied on their personal collections of medical textbooks and journals. One physician in private practice indicated he and his partner have BRS Colleague which he uses infrequently since he doesn't like it; it is not user friendly and is expensive to use, he reports. Another physician with the South Texas Family Practice Residency Program requested some items needed through the UTHSCSA Library.

Accessing CLHIN
One learned about CLHIN at a presentation given by Circuit Librarian Mary Jo Dwyer; another "ran into the librarian" at McAllen Medical Center in the doctor's lounge (the location of the CLHIN librarian during her weekly visits). Referring to "Mary Jo" and "the librarian", one physician said he either waits for her scheduled visits to the Family Practice Clinic or calls the CLHIN base at South Texas Hospital. The other physician reported trouble in trying to locate Mary Jo; he called McAllen Medical Center and asked for the librarian and was told the medical center had no library or librarian and no one knew what he has talking about. [He was given the CLHIN phone number at South Texas Hospital.]

Reasons for Use
Both participants said they use the circuit librarian to find articles for research —writing papers, presentations, etc. —and for getting the most up-to-date information for patient care— information on current syndromes that has not yet appeared in textbooks. Residents in the South Texas program are encouraged to use the service to find articles on patient care topics, said a physician.

Positive / Negative Features

The timeliness of the service and the convenience of having someone to do the searching were mentioned as major positive aspects of CLHIN. "I don't know if the service works because of who you have doing it or because of the design of the service," said a physician, "but I like it. I don't want to do it myself."

To encourage use of the service, both participants suggested increasing publicity and expanding awareness of the service in the Valley. Some specific suggestions were made:

- mail out a Rolodex card with the CLHIN phone and address and the circuit librarian's schedule and phone numbers to physicians and health care professionals throughout the Valley; and
- make the main switchboard operators at each hospital aware of the service so they don't tell the caller there is no library or librarian.

4C. 4. Brownsville Medical Center Focus Group — Physicians
Thursday, July 11, 1991, 8 - 9 a.m.
4 participants [18 invited]

Previous Use

Physicians reported getting information in a number of ways:

- writing/phoning the Texas Medical Association library;
- ordering books on approval from publishers/suppliers;
- using private collections and journal subscriptions; and
- traveling to Houston/Austin when possible.

One physician noted the CLHIN was operational when she arrived in Brownsville.

Accessing CLHIN

One physician in Brownsville first learned of the CLHIN program at a meeting at Valley Regional Medical Center (another hospital in Brownsville); another recalls the notification memo sent out by the head of medical records at Brownsville Medical Center. Finally, another physician met Mary Jo Dwyer in the doctor's lounge (site of the CLHIN service). These physicians and the hospital contact all report calling Beverly Rocha at South Texas Hospital or calling Mary Jo Dwyer at whatever hospital she is at that day when needed.

Reasons for Use

Known as "Mary Jo," the service fills a variety of needs for the physicians:

- information on specialized conditions (treatment, diagnosis, etc.);
- information to supplement what the physician already knows or has in his or her files;
- interlibrary loan requests;
- clinical information on new treatments, new diagnostic procedures, etc.; and
- information for research purposes such as writing articles, making presentations, etc.

The hospital liaison also reports that she regularly takes information requests from pharmacy and dietary staff members to relay to Mary Jo Dwyer.

Positive / Negative Features

One of the positive factors of the service is access to information that helps the physicians treat patients. "At least you are treating intelligently instead of treating out of ignorance," explained one physician. "I like the person you have doing it. Mary Jo couldn't do it better — she is responsive and helpful, makes you feel welcome, is knowledgeable and gets you the information in a timely manner," said another physician. Another physician who has GRATEFUL MED said he prefers to use the CLHIN services because of the computer and telecommunications problems he encounters.

To encourage use, the physicians suggested more publicity for the program (brochures, sending Mary Jo to speak at meetings, a newsletter listing new journals and books acquired by the UTHSCSA library). Other suggestions included:

- having medical libraries in Texas interact with the TMA library;
- providing monthly digests of the medical literature in various specialty areas;
- offering a brochure of the library services available at the UTHSCSA Library for Valley physicians who might travel to San Antonio;
- providing speakers and videotapes for continuing education opportunities in the Valley; and
- offering teleconference opportunities from UTHSCSA.

Using GRATEFUL MED

The three physicians were familiar with GRATEFUL MED — one likes the capability of being able to do it independently but doesn't use it due to telecommunications problems; another watched Mary Jo Dwyer run a search using GRATEFUL MED but doesn't have time to do it herself; another likes the idea of doing it herself but is not "computer literate." Also familiar with the flat-rate program, they suggested that NLM offer various levels of flat-rate packages — a student version, a low-user version and a high-user version.

4C. 5. Valley Regional Medical Center [Brownsville] Focus Group — Nurses

Thursday, July 11, 1991, Noon - 1 p.m.
4 participants [11 invited]

Previous Use

Previous to establishment of the CLHIN program, nurses would buy their own books via special order, use the public library or the university library at Edinburgh, or rely on an informal network of colleagues in the Valley.

Accessing CLHIN

Most report having heard about the circuit library program through announcements and flyers or through their hospital administrators. The nurses report waiting until Mondays when Mary Jo Dwyer visits the hospital, contacting the hospital liaison or calling whatever hospital Mary Jo Dwyer is located at on that day in order to get information from the librarian.

Reasons for Use

Patient care and work-related topics (policy development, etc.) are among the reasons for use: staph-resistant infections, administration of preceptorships, foundation grants and addresses, ethical considerations of abortion on hospital policy, marketing of day surgery, quality assurance and procedural considerations, infection control, rare conditions, drug information, etc. Some of the nurses also use the service for work on research — in master's programs, etc. Finally, the nurses report that they have used the service to find information for preparing in-service presentations, CME courses, staff development programs, and employee orientation-evaluation programs.

Positive / Negative Features

Among the positive factors are the timeliness and convenience of the service. "I just tell Mary Jo what I want," said one nurse. The one-on-one contact with Mary Jo was mentioned as the most positive aspect of the service. Timeliness can be vital in patient care situations; the nurses related one incident with a "cocaine mule" and the hospital's need to know the legal and medical aspects of providing care.

Encouraging use could be accomplished by publicizing the service through new employee orientations at hospitals, posting notices and through more word-of-mouth advertising. The location of the circuit librarian in the hospital is also important; Mary Jo Dwyer was first given a very visible location and then moved. After numerous complaints she was moved back to the original location. Suggestions for improvement included having Mary Jo for a whole day instead of half a day, and increasing the size of the nursing collection.

4C. 6. South Texas Hospital [Harlingen] Focus Group — Physicians + Nurses
Friday, July 12, 1991, Noon - 1 p.m.
14 participants [17 invited]

Previous Use

This combined group of physicians and nurses used a variety of methods to obtain information prior to CLHIN:

- the hospital's Library Committee circulated lists and routed journals;
- the departments would call colleagues in Houston or San Antonio;
- the TMA library was used;
- some items were requested on interlibrary loan from the public library;
- the director of nursing would route nursing journals; and
- some nurses would call M.D. Anderson for patient education materials.

Accessing CLHIN

Access to CLHIN was not discussed very much in this focus group since South Texas Hospital is the CLHIN base and Beverly Rocha is available during the work week.

Reasons for Use

The reasons for use are varied:

- to find up-to-date review articles (a recent example was to find information on ventilation system for tuberculosis wards);
- information on the latest treatments;
- current drug information (usage, side effects, etc.);
- information to help in policy development; and
- interlibrary loan requests for videotapes for in-service programs.

Positive / Negative Features

Availability of information is one of the most positive aspects of the program. Prior to the establishment of CLHIN, the "library holdings" of South Texas Hospital were dated and hospital staff had no way of getting computer searches or bibliographies/abstracts to even request articles. One of the first activities of the circuit librarian was to weed the library collection and replace dated textbooks with current ones. In addition, staff mentioned that the access to the current literature via computer searches and interlibrary loan has made a difference in patient care — timeliness, current articles help the physician know what treatments work and what to expect, and, overall, have made treatment more efficient.

The hospital administrator cited an example of a computer search saving the hospital money due to a change in policy. Based on the results of a computer search, the hospital switched to the use of a saline solution instead of heparin and will save $10,000 annually. Quality assurance is another area that has benefitted from the CLHIN program, including increased cooperation between quality assurance coordinators in the Valley, according to one hospital staff member. To further promote the service, the hospital staff recommends presentations at staff and departmental meetings and in-service programs. Most feel that the CLHIN program is well-known at South Texas Hospital.

Another positive of the program is the circuit librarian, Mary Jo Dwyer. With the exception of a pharmacy staff member, all of the focus group participants expressed the desire to have the librarian do the search and said they are not interested in learning to do searching for themselves using GRATEFUL MED. "Why should I?" queried one physician. Others cited a variety of reasons — not enough time, no inclination to learn, not computer literate, not willing to learn indexing practices, etc. The pharmacy staff member expressed an interest in GRATEFUL MED because the department recently received its own computer.

4C. 7. Summary of CLHIN Focus Group Discussions

Comments from participants in six focus groups in the Valley counties were remarkably similar regarding their perceptions and attitudes about the service provided by the Circuit Library Health Information Network of South Texas.

- Nearly all participants used the same methods to obtain information — personal collections, ordering books and journals on their own, calling the TMA Library or the UTHSCSA Library — or went without information.
- The ability of health professionals in the focus groups to relate the CLHIN service to personal contact with the circuit librarian was repeatedly mentioned. Attributes mentioned in relation to the librarian were "helpful, knowledgeable, timely". Participants felt comfortable about contacting the circuit librarian at times other than her weekly visit to their particular hospital. Prompt delivery of information and the ability to discuss a particular information request or its results with the circuit librarian were also seen as very important.
- The success and continued growth of the program is due to the efforts of Mary Jo Dwyer as circuit librarian and the prompt delivery of useful information. Nearly everyone in attendance at a focus group said that they had contacted Mary Jo at another facility.
- The hospital liaison is a key individual in terms of the program's success. In hospitals where this person was highly visible and enthusiastic there was the greatest attendance from a wider variety of backgrounds at focus groups.
- All focus group participants indicated a need for more active promotion to increase awareness. Increased promotion of the CLHIN would most likely lead to increased demand for services which at the present time would be difficult to meet without additional staff in both the Valley and San Antonio. However, the overall emphasis of comments on increasing awareness show that a more coordinated promotion effort is actually what is sought. Specific comments of physicians, nurses and other health care professionals show a need for a coordinated packet of information on CLHIN to be designed rather than the piecemeal flyers and brochures presently in use; this packet should include information on resources outside the Valley such as the UTHSCSA Library (borrowing privileges, services available, hours, etc.)
- The primary reason for use of CLHIN service is to meet information needs in patient care situations; this is not surprising since CLHIN users are primarily clinicians. Other uses include hospital administration and professional research (continuing education, writing articles, preparing presentations, etc.)
- Several participants indicated that they preferred having a librarian conduct

MEDLINE searches for them, rather than learning how to search themselves. The time required to learn a computer system and to perform searches on their own were cited as reasons why a librarian was preferred.

4D. TELEPHONE INTERVIEWS

4D.1. Administrators

The administrators of ten hospitals which are members of the circuit librarian program were contacted for their perceptions about the program. Of the ten administrators, eight were interviewed. The two remaining administrators were called, messages left and returned phone calls were missed. Three attempts were made to contact these individuals. One of these administrators, however, had attended and participated in a focus group meeting held earlier in the year.

The eight administrators who were interviewed were employed by one of the following institutions:

- AMI Brownsville Medical Center
- Dolly Vinsant Memorial Hospital
- Edinburg Hospital
- Knapp Medical Center
- McAllen Medical Center
- South Texas Family Practice Clinic
- South Texas Hospital
- Valley Baptist Medical Center

The two administrators who were not interviewed were employed at either:

- HCA Rio Grande Regional Hospital
- Valley Regional Medical Center

Five questions were asked of each administrator. The questions were:

1. What motivated your decision to join the circuit?
2. What aspects of the program do you like?
3. What changes would you recommend?
4. Have you used the service yourself?
5. What value is the program to you, your staff and institution?

The administrators were overwhelmingly positive about the program and were extremely consistent in their responses. The summary of the responses to each question are below.

What motivated your decision to join the circuit?

Each administrator stated that his or her institution joined the circuit because there were virtually no library resources in the Valley. Each said that his or her in-house library was outdated and that they could not afford to upgrade. The circuit provided a service that they could not otherwise have. The circuit was also very inexpensive when one considered the advantage it provided. Several said that the Joint Commission was also a factor in deciding to join.

What aspects of the program do you like?

The major aspect of the program that administrators felt was most positive was having an on-site librarian/consultant at least one day a week in addition to being able to phone the librarian for information. In addition, the administrators said that the turn around time was nearly instantaneous. Most felt that the additional staff member (Beverly Rocha) had helped tremendously in getting information to the doctors quickly. All stated that being able to have articles faxed was a big plus. The after hour and weekend service was greatly appreciated. Each administrator felt that the expertise of the librarian and the rapid turn around time had had a very positive effect on patient care.

What changes would you recommend?

The only change that was suggested by the administrators was to have greater publicity about the program. Several felt that the service was not well enough known. They suggested that the librarian attend more in-service meetings in order to tell staff about the program; they felt that when the librarian had attended meetings in the past it was very well received. If the librarian could not attend meetings then more brochures should be provided to the hospitals.

Only one person said that they had received faxes belonging to another and that it had not been a problem. They simply called the rightful owner and faxed them again.

Have you used the service yourself?

Seven of the eight administrators had personally used the CLHIN service. The reasons for use were varied and included: administrative issues (free standing ambulatory care settings), personnel issues (pharmacist retention), health care issues (wanted to see what had been published about a case of cholera found in Port Lavaca in 1976), educational issues (medical student selection of residency programs), personal education (working on a paper for a Psychology class) and personal medical reasons (grandchild was ill).

What value is the program to you, your staff and institution?

The unanimous response to this question was that the circuit librarian program was invaluable to the member hospitals. While none of the hospitals could say that they had been able to recruit specialists into the area because of the circuit librarian program, they did say that the specialists who are coming into the Valley are requiring a service such as the CLHIN. In addition, the administrators flatly stated that if the program were in jeopardy in any way that they would have a revolution on their hands. The physicians and other health professions have come to depend upon the service since it allowed them accessibility to the most recent information. The administrators felt that being a member of the circuit program satisfied Joint Commission requirements.

4D. 2. Non-users

In an effort to determine why physicians in the Valley are not using the circuit librarian program, telephone interviews were also attempted with this group. A list of all physicians who had not used the service was generated and 20 names were selected using a random numbers table. Of those 20, only two were interviewed. The eighteen other physicians' offices were contacted, message left, but the calls were not returned.

Although only two out of twenty physicians were interviewed about the reasons they did not use the circuit librarian program, it should be noted that their responses were consistent with each other and reflected the same information obtained in the focus groups. That is, physicians in the focus groups said that the reason physicians did not use the librarian was because they were unaware of the service. The two physicians contacted by phone were not aware of the service. It could also be, however, that physicians who do not use the service simply do not need it due to the fact that the patients they treat present with unremarkable symptoms. While this could be the case, we do not have data at this time to support this hypothesis.

4E. CLHIN DISCUSSION

Circuit Librarian models

The "circuit librarian concept" is generally credited to the staff of the Cleveland Health Sciences Library (CHSL) of Case Western Reserve University which began a pilot program in 1973 with five community hospitals in northeastern Ohio. [29,30] The CHSL program employed the circuit librarian who spent four of five days at the community hospitals and the fifth day at the CHSL. By June 1981 the Cleveland program had grown to nine circuit librarians serving 23 hospitals and had served as a model for other programs. [31] A similar arrangement exists between hospitals in western New York State and the Health Sciences Library of the State University of New York (SUNY) at Buffalo. [32] The number of hospitals participating in this circuit grew from 15 in 1984 to 21 in 1989. Participating hospitals received regularly scheduled circuit librarian visits, a collection development grant, and a grant for contract library services. Kublin and Manning have reported on a circuit rider librarian program in Nova Scotia that is managed by Dalhousie University's W. K. Kellogg Health Sciences Library in Halifax.[33].

A variation on the University-based circuit librarian program is one managed by a large hospital. Antes described the circuit program operated by the 323-bed Robert Packer Hospital in Sayre, Pennsylvania, which serves a forty-county rural and semi-rural area in Pennsylvania and New York. [34] Gordner updated Antes' report giving use statistics from 1977 through 1981 and providing much detail on the operation of the program. [35] Plunket et al reported on the Circuit Rider Librarian Program which was begun in 1979 by the Central Maine Medical Center in Lewiston through a three-year National Library of Medicine Project Grant. [36] Similar programs are managed by the Rochester General Hospital in Rochester, New York and Abbott-Northwestern Hospital in Minneapolis.

A third model has been described by Gillikin et al which combined a hospital consortium with a circuit librarian program. [37] This program began in 1978 as a two-year pilot project of the Bowman Gray School of Medicine through its library and its Area Health Education Center (AHEC) office to meet the information needs of a four-county rural area of northwestern North Carolina. The AHEC librarian made regular half-day circuit visits to all member hospitals on a monthly, weekly, or semiweekly basis, depending on hospital size and need. "Although major resources were available at the AHEC library, each institution agreed to develop a core collection of materials." [38] Appendix C contains a report of the current status of several circuit librarian programs.

The CLHIN program in the Lower Rio Grande Valley of Texas is similar to these models, but has some unique variations. Although begun by the UTHSCSA Library as a state funded program, the CLHIN now receives most of its funding through the Lower Rio Grande Valley Area Health Education Center (LRGV-AHEC). None of the ten CLHIN participants (nine hospitals and one family practice residency training program) had professional library staff and only one hospital (Valley Baptist) had a library collection of any size. The institutions participating in the CLHIN have made no commitment to developing library collections or being part of a consortium.

The LRGV-AHEC is managed by the UTHSCSA Medical School in San Antonio, with a Valley office in Weslaco. The possibility of establishing a second Valley office at the University of Texas at Brownsville and relocating the CLHIN staff to this office is being explored. CLHIN is currently based at the South Texas Hospital in Harlingen and mainly relies on the collection of the UTHSCSA's Briscoe Library in San Antonio, some 200 plus miles away. The local CLHIN collection is limited to about 170 monographs (including those owned by the South Texas Hospital) and whatever journals that the South Texas Hospital staff have chosen, some 77 titles.

CLHIN Services

The primary services provided by the CLHIN librarian, Mary Jo Dwyer, are MEDLINE searches, document delivery, consultation on local library collection development, and GRATEFUL MED training. Ms. Dwyer visits each of the ten participating institutions weekly, spending a varying amount of time at each. Figure 5 is a typical monthly schedule. Ms. Dwyer's schedule is posted at each CLHIN institution and participants are encouraged to call the CLHIN office or her at each scheduled location if she is needed. In the other circuit librarian models, the librarian returns to the base library on a weekly or biweekly basis. CLHIN staff are in touch with UTHSCSA Library staff almost daily by telephone, telefax, and electronic and surface mail. Ms. Dwyer makes periodic trips to San Antonio for consultation and her assistant, Ms. Rocha, has had in-depth training at the UTHSCSA Library.

During the first twelve months of the CLHIN program, the number of participating institutions grew from three to the present ten. The number of MEDLINE searches run the second year was more than triple those run the first year while the number of documents delivered almost doubled. (See Table 28) Cost has not been a factor in deciding whether a MEDLINE search will be run or whether documents will be mailed or faxed. Limits on faxing have been set by the UTHSCSA Library because of staff time constraints. Comparisons of the literature searching statistics from the CLHIN program with the statistics reported by the Robert Packer Library program would be of little value since Gordner reported that most of the searches at the Robert Packer Library were done manually, with online searching accounting for about 20 to 25% of the searches. [39]

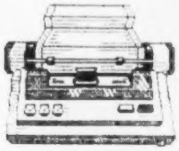
Transaction Analysis

Most CLHIN transactions were recorded in a monthly log which was transmitted to San Antonio and cumulated for this evaluation project. The log includes both reference transactions and verification requests. These 1547 transactions were analyzed by requesting institution, occupation of requestors, and number of transactions per requestor. Ms. Dwyer estimates that as many as 15% of reference requests may not have been recorded because they were requests answered on the spot when documentation would have been awkward. Interpretation of the transactions, therefore, must be done with caution.

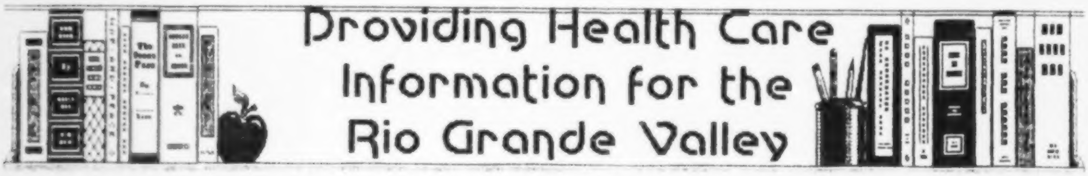
The transactions per CLHIN institution during the 19 month period ranged from 44 from the South Texas Family Practice Residency Program to 352 from the Valley Baptist Medical Center. Although Valley Baptist did not join CLHIN until August 1990, with 372 beds it is by far the largest hospital in the Valley. In addition to offering a Licensed Vocation Nurse (LVN) training program, several Valley Baptist nurses are pursuing advanced nursing degrees which probably also affected the number of requests. Table 29 indicates the distribution of requests by institution. Edinburg Hospital with 98 beds had 50% fewer requests than did Dolly Vinsant Hospital with 49 beds, but this was because Edinburg Hospital did not join the CLHIN until 1991. There was no pattern of growth in requests from each hospital by month.

The 1547 transactions were also analyzed by the requesters' professional status. The usage by physicians and nurses was almost equal at 42.7% and 42.4% respectively for a total of 85.1%.

January, 1992
AHEC CIRCUIT LIBRARY



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 Holiday Happy New Year!	2 Valley Baptist Medical Center 421-1958	3 Dolly Vinsant Memorial Hospital 399-1313 South Texas Hospital 423-2430	4 Mary Jo Dwyer Circuit Librarian **********
5	6 Brownsville Medical Center 544-1524 Valley Reg. Med. Center 831-9611	7 McAllen Med. Center 632-4069 Family Pract. 687-6155 Rio Grande Reg. Hospital 632-6724	8 Knapp Med. Center 969-5210 Mission Hosp. 580-9000 Edinburg Hospital 383-6211	9 Valley Baptist Medical Center 421-1958	10 Dolly Vinsant Memorial Hospital 399-1313 South Texas Hospital 423-3420	11 Beverly Rocha Library Assistant **********
12	13 Brownsville Medical Center 544-1524 Valley Reg. Med. Center 831-9611	14 McAllen Med. Center 632-4069 Family Pract. 687-6155 Rio Grande Reg. Hospital 632-6724	15 Knapp Med. Center 969-5210 Mission Hosp. 580-9000 Edinburg Hospital 383-6211	16 Valley Baptist Medical Center 421-1958	17 Dolly Vinsant Memorial Hospital 399-1313 South Texas Hospital 423-3420	18 Office Hours 8am-5pm Mon.-Fri. Telephone 423-3420 Fax Number 423-3045 **********
19	20 Brownsville Medical Center 544-1524 Valley Reg. Med. Center 831-9611	21 McAllen Med. Center 632-4069 Family Pract. 687-6155 Rio Grande Reg. Hospital 632-6724	22 Knapp Med. Center 969-5210 Mission Hosp. 580-9000 Edinburg Hospital 383-6211	23 Valley Baptist Medical Center 421-1958	24 Dolly Vinsant Memorial Hospital 399-1313 South Texas Hospital 423-3420	25 Evenings, Weekends, and holidays 399-1128 **********
26	27 Brownsville Medical Center 544-1524 Valley Reg. Med. Center 831-9611	28 McAllen Med. Center 632-4069 Family Pract. 687-6155 Rio Grande Reg. Hospital 632-6724	29 Knapp Med. Center 969-5210 Mission Hosp. 580-9000 Edinburg Hospital 383-6211	30 Valley Baptist Medical Center 421-1958	31 Dolly Vinsant Memorial Hospital 399-1313 South Texas Hospital 423-3420	



Providing Health Care
Information for the
Rio Grande Valley

FIGURE 5

BEST COPY AVAILA

The consultants who reviewed the preliminary report of this project remarked with surprise that nursing staff accounted for 42.4% of the use. However, Gordner reported that nursing represents 41.7% of the total use of the Packer Hospital circuits between 1977 and 1981; physicians represented 28.3% of total user requests, and others such as pharmacy, personnel, social services and allied health departments represented 30%[40]. Gordner noted that "Nurses in small rural hospitals especially need access to educational and professional materials since they must deal with situations requiring quick action and decision making before the doctor arrives." [41] CLHIN use by nurses may be affected by new nursing degree programs which have recently been started in the Valley by the University of Texas nursing schools in Houston and San Antonio. The CLHIN librarian has occasionally been asked to perform non-medical searches or retrieve non-medical items. In such cases she refers the requester to either the state public library network or to an area academic library.

The transactions were also analyzed by requesters to see how many were from repeat requesters. It is difficult to interpret the meaning of these results as no similar analysis has been reported. There were requests from 436 persons, with 41.5% of these persons making only one request and 29.6% making two or three requests while six persons made from 20 to 47 requests each. One explanation may be that requests were often relayed through the liaison who did not indicate the original requester to CLHIN staff. Another explanation may be that requesters only seek answers for unusual cases. Covell et al found that 69% of the questions asked by subspecialists dealt with problems outside their subspecialties, so we could assume that there would be many unusual cases within a 19 month period [42] However, most physicians at CLHIN institutions are not subspecialists.

Physician users

The demographic variables of the physicians who used the CLHIN services in the Valley were compared to those that did not. There were no statistically significant demographic variables that explained why one group should choose to use the service. Research in organizational behavior suggests that although both quality and accessibility influence use of information sources, accessibility rather than quality consistently determines information usage. [43] Although we attempted to interview non-users, only two were reached and they had never heard of the service. We assume that lack of awareness of the CLHIN service and infrequent use of the CLHIN hospital despite having admitting privileges are among the reasons for non-use.

Economics

The economics of circuit programs can be problematic. Thus far the CLHIN institutions have paid less than 20% of the cost of the service. The more the service is used, with the present structure, the more it costs to deliver the service. Should success be measured by number of searches run and documents delivered? Although both focus group discussions and administrator interviews note that the CLHIN service is not as well known as it could be, increasing service without a change in funding mechanisms and staffing would be difficult.

Feuer raised the question of who institutes requests for service, the librarian or the hospital staff, and what is the point at which the service outprices itself? "We have found that even though it might be economically more feasible for a hospital to hire its own librarian and thus control these two factors, administrators of circuit institutions have been reluctant to sever affiliations with the university or drop out of the circuits." [44] There are advantages to a hospital in contracting for services as opposed to operating its own library. These include the ability to cancel a contract without the anguish of terminating employees, the access to larger collections offered by affiliation with the contracting library, and the prestige of affiliation with either a teaching hospital or academic institution.

Staffing

Staffing circuit library programs can be another challenge. The personality of the circuit librarian is a key factor in the success of a circuit library program. "Accessibility through personal contact is the keynote of the circuit library service. The circuit users do not have to break through the barriers of a traditional library atmosphere; the circuit librarian goes to their working environment to determine the users' information needs." [45] "A hospital librarian...must take the initiative in becoming acquainted with hospital personnel and activities. This approach is particularly necessary for a circuit librarian because she visits the hospitals only once per week. One of the major advantages of a program using a circuit librarian is that her weekly presence reminds hospitals that they have access to a resource library." [46]

Birkinbine and Bertuca reported that personnel turnover is one of the difficulties with circuit library programs. They attributed the turnover to low salaries, inadequate travel reimbursement and the entry level of the job position despite its responsibilities. [47] The requirement for extensive driving could be considered a drawback. Gordner reported driving 600 miles in a typical week. [48] Dwyer logged over 8000 miles in twelve months. [49]

Evaluation

The evaluation of the CLHIN was by focus group discussions in June and July, 1991 and by telephone interviews with administrators in November, 1991. The focus groups participants clearly indicate that the CLHIN is considered useful. Telephone interviews with hospital administrators reinforce the positive view of the service. Although institutional change is very difficult to document, these interviews confirm the authors' intuitive belief that the CLHIN has made a difference in the Valley. Specific examples of questions could be used to document this, but such vignettes are not a part of this report except as part of focus group reports and interviews with administrators.

4F. CLHIN CONCLUSION

Three factors are critical for a successful circuit library program: (1) circuit library staff with effective interpersonal communication and information access skills, (2) effective institutional liaisons and (3) strong backup resources on which the circuit librarian can rely for consistent service.

The success of the CLHIN is primarily due to Ms. Dwyer's outstanding communication and information access skills and the knowledge and contacts which she has developed in her years of professional librarian service. Ms. Dwyer's commitment to and enthusiasm for her work is contagious. She exemplifies the service-oriented, people-oriented attitude which Gordner suggested was essential for the successful operation of a circuit. [50] The addition of Ms. Beverly Rocha to the CLHIN office as Senior Administrative Clerk in August 1990 has helped provide needed assistance and backup for Ms. Dwyer. Although she had no prior library experience, Ms. Rocha has received training in GRATEFUL MED searching, reference verification, and requesting interlibrary loans. UTHSCSA Library management are desirous of institutionalizing the CLHIN program sufficiently so as not to be wholly dependent on Ms. Dwyer for its success.

Another ingredient in successful circuit programs are enthusiastic liaisons. Birkinbine and Bertuca observed that if the hospital liaisons were disinterested in the circuit, or if they viewed their liaison duties as less than priority, the program suffered. [51] The CLHIN Memorandum of Understanding which was signed by each participating institution's administrator specified that a liaison would be named to refer information requests and specific problems to the Circuit Librarian. The focus group discussions indicated that in hospitals where the liaison is highly visible and enthusiastic, there is greater use of the service.

The final ingredient in a successful circuit program is strong backup resources on which the circuit librarian can rely for consistent service. Not only do UTHSCSA support staff assist in document delivery, but the UTHSCSA Library reference librarians assist when Ms. Dwyer has trouble locating an answer and when Ms. Dwyer is unavailable. The UTHSCSA Library has supplied over 90% of the items requested by Ms. Dwyer. Most requests are mailed or faxed to the UTHSCSA Library and although records have been kept for the 6300 plus documents, they have not been analyzed. The ability of an academic health sciences library to sustain a demanding outreach program such as the CLHIN may depend on whether it can be firmly embraced within the organization's institutional mission. In the current climate of fiscal retrenchment, outside funding for outreach programs may be critical.

This evaluation of the CLHIN circuit library program has raised a number of questions. How typical is CLHIN of circuit library programs? Current detailed data on other circuit library programs should be gathered to compare with the CLHIN data. What use do persons make of the information provided by the CLHIN librarian? The effectiveness of circuit librarians in providing useful information should be examined. One such study involving the Rochester circuit program has recently been reported by Joynt et al. [52] Is there another approach that would work as well in the Valley? The model of the computer based Georgia Interactive Network for Medical Information (GAIN) is another approach which should be compared with the circuit librarian. [53] A second possibility is "academic detailing" based on aspects of the promotional activities of pharmaceutical company sales representatives. Soumerai and Avorn suggest this as a method for improving physicians' choice of drugs but it might also be a method for encouraging health care professionals to more fully utilize the biomedical literature for decision making. [54] The importance of personal encouragement to use the biomedical literature cannot be overemphasized.

5. GRATEFUL MED/SOUTH TEXAS MEDLINE PROGRAM (GM/STMP)

FLAT-RATE PASSWORD ACCESS

5A. OVERVIEW

The UTHSCSA Library was a test site for the National Library of Medicine's "flat-rate password" program which allowed unlimited searching of the NLM databases for a twelve month period for a single payment to NTIS of $100 per password. This program was a limited pilot project whereby NLM tested whether MEDLINE usage would increase if users were not paying on a per search basis. The UTHSCSA project was named the "GRATEFUL MED/South Texas MEDLINE Project" (GM/STMP) because UTHSCSA staff encouraged the use of GRATEFUL MED software with the flat-rate passwords in order to simplify search techniques for novice searchers.

In November, 1989 when the UTHSCSA's proposal for participating was accepted by NLM, only two other sites had offered the flat-rate program - the University of Washington Health Sciences Library at Seattle and the Walter Reed Hospital in Washington, DC. The UTHSCSA flat-rate program had different parameters from both of these institutions as UTHSCSA was approved to sell passwords to **all persons** who worked or resided in the 512 telephone area code of Texas, regardless of affiliation with the UTHSCSA or requirements that password purchasers be health professionals. Although this large geographic area has several metropolitan areas, much of the area is rural, has a large Hispanic population, and is considered medically underserved. Six counties were targeted for marketing: Bexar County where the UTHSCSA is located, Travis county where the Texas Medical Association (TMA) Library and the University of Texas at Austin are located, and the four Valley counties where the CLHIN is located.

The start-up date for the UTHSCSA GM/STMP was set as March 1, 1990 and then delayed until April 2 since the new version of the GRATEFUL MED software for IBM personal computers was delayed and version 4 of the software was no longer being distributed. The new version 5.0 was actually released on May 3, so the planned "twelve month project" was extended to end on April 30, 1991. Few persons used their passwords more than 12 months, thus all usage computations are based on 12 months.

Objectives
UTHSCSA staff established three major objectives for the GRATEFUL MED/South Texas MEDLINE project:

1. Increase use of medical literature through end-user access
2. Save money for UTHSCSA users and Library
3. Outreach to area health care professionals

The first objective was the most important. Although off-campus mailings went only to physicians, UTHSCSA staff tried to aggressively promote the passwords to all persons affiliated with the UTHSCSA. Passwords were sold to physicians, basic scientists, dentists, nurses, pharmacists, librarians, and students. The second objective was important because it was assumed that users would appreciate the opportunity to personally work with MEDLINE without concern for cost. In addition if GRATEFUL MED use was successful, then the Library could either avoid or minimize investing in CD-ROM MEDLINE equipment, yet still offer convenient and inexpensive access to the full MEDLINE database with abstracts. Outreach to practitioners in Bexar County and South Texas, particularly the Lower Rio Grande Valley was the third goal. Even though outreach is a priority with NLM and the National Network of Libraries of Medicine (NNLM), because of personnel and financial constraints, outreach is not usually a driving force for the UTHSCSA library unless it complements other goals.

Administration

The UTHSCSA library committed to purchasing 300 passwords, for a total charge of $30,000. Although the flat-rate charge for a password was $100, UTHSCSA staff felt it was essential to add a surcharge to cover administrative expenses. Hence it was decided to offer two options: a basic password for $110 and a combination package for $160 which included the password, GRATEFUL MED software, a two-hour training session, and a newsletter. New procedures for collecting sales tax on the software had to be established and UTHSCSA Circulation desk staff were trained to handle sales during the 100 hours per week that UTHSCSA Library is open.

Promotion

Promotion of the GM/STMP occurred in a variety of ways. An attractive brochure was produced. News items were published in the UTHSCSA Library News, the UTHSCSA News, and Texas Medical Association publications. The GM/STMP was particularly promoted to area libraries, assuming that cooperating local librarians would identify persons who might be interested. Librarians were also eligible to participate so long as they did not use the flat-rate password for other than personal searches. An attractive exhibit was mounted near the entrance to the Library for several months. The project was also promoted at several UTHSCSA departmental functions. Drawings for free software were held and a special student password project was initiated. Personal contacts were a key marketing approach. Finally in February and April, 1991 Library staff hosted special open houses called "Library Nights" for area physicians to introduce them to the services of the library and to do demonstrations of GRATEFUL MED. Although the Library Nights were not used to promote the GM/STMP which was drawing to a close, experiences with the project and related surveys were instrumental in the decision to reach out to area physicians in this way. Through the mailings for Library Nights, library staff identified additional persons who were interested in information access, and librarians subsequently discussed library services at several hospitals' staff meetings. Appendix D is a summary of the promotional activities.

Medical Student Promotion

In relation to the GM/STMP UTHSCSA, Library staff wished to experiment with a special project to encourage third year medical students to use MEDLINE. In May 1990 we asked the Medical School Dean to fund 20 students' use of flat-rate passwords for $2000. Unfortunately the Dean felt he could not afford to financially support this project, but he encouraged us to explore other options. We decided to go forward with the project, but instead of using the flat-rate passwords, we would use the special student passwords which were charged at 50% of the regular rate.

In July 1990 the student project was announced as part of the Library Orientation for third year medical students who were beginning their medicine clerkship. We asked that interested students give us their names and we would select 20 by lot. We were pleased that 63 of the class of 200 expressed interest and we subsequently decided to allow all 63 to participate.

We sent the 63 third year students a letter explaining that they would have to take a brief training course (1 to 2 hours) and then we would assign their passwords. Although we set some times, the training could be scheduled more or less at the students' convenience. We did not do additional follow-up to encourage students to get their passwords. By September 1990, only 26 of the 63 had picked up their passwords. This promotion was limited to third year medical students, and was not sponsored by a faculty member who could actively encourage use.

Training Options
A major promotional strategy was to emphasize training. Library staff hypothesized that practicing physicians were more likely to purchase a password if training was part of the package. A four-hour course "MEDLINE to Go," offering .4 Category I AMA continuing education credits, was developed, as was a 2-hour non-credit workshop. Two mailings promoting the four-hour courses were sent, the first to approximately 5000 physicians in the 50 counties in South Texas, and the second to the 2000 physicians in the South Texas counties other than Bexar.

GRATEFUL MED CME classes were taught on April 28, June 2, and August 11, 1990. A total of 19 physicians attended these four-hour workshops, for which they received .4 AMA Category 1 credit hours. Participants could choose to buy GRATEFUL MED software and a password as part of the class for $275. For $125, they received workshop instruction only. Although the attendance was disappointing, the classes were well received.

The seven participants attending the April 28 class completed questionnaires about their anticipated use of MEDLINE. Five of the seven purchased GRATEFUL MED and a password along with the training; two chose only training. Most of the participants planned on using MEDLINE for patient care, to stay current, and to prepare a lecture or paper. The most popular reason for obtaining a flat-rate password was to be able to access the full MEDLINE and other NLM databases. Although participants could choose more than one reply, all five who purchased the flat-rate password chose this answer. The participants in this group were slightly older than was anticipated: five received their degrees during the 1970's, while the other two received theirs in the 1960's. It is also interesting that three of the seven are directly involved in pediatric care.

The opportunity to attend a 2-hour workshop was included in the $160 purchase price for those who chose to buy GRATEFUL MED and a password. This workshop was scheduled frequently—as often as weekly in the beginning—and many other participants who could not attend the workshop were trained in one-on-one sessions. 107 participants were trained in these small group or one-on-one sessions. In all, 45 sessions were held.

The Texas Medical Association Library also offered MEDLINE classes with CME credit at lower costs. The TMA Library scheduled a class in the Valley in 1990 but cancelled it because of lack of registrations.

5B. PASSWORD USAGE, 1990-91

Sales
There were 243 passwords sold as shown in Table 32. Kotzin and Eichenberger reported that as of March 1990 there were 1906 MEDLARS access codes in the five-state South Central Region of the Regional Medical Library Program which includes Texas, Arkansas, Louisiana, Oklahoma and New Mexico. Of the 1906, 616 codes were assigned to individual health professionals as of March, 1990. [55] The sales of 243 passwords to individuals increased the number of such codes in this region by 39%. One hundred twenty-one of the 200 password purchasers in Bexar County had some type of affiliation with the UTHSCSA such as a full or part-time faculty appointment, a voluntary clinical faculty appointment, or a staff appointment.

Table 32
Password Sales

Persons from Bexar County	200
Persons from Valley counties	7
Other South Texas counties	36
Total flat-rate passwords sold	243

The distribution of the participants in the GRATEFUL MED/South Texas MEDLINE project by professional degree of participants is shown in Table 33. Among those grouped as "other" are librarians, pharmacists, educators, athletic trainers, and students. There were seven persons who indicated their profession as "student": a first year medical student, a Public Health student, a second year dental student, two second year graduate students, and two students at area universities.

Table 33
Password purchasers by professional degree

Physicians (MD, DO)	129
Dentists (DDS, DMD)	5
PhDs	46
Other (PharmD, MLS, Masters, Bachelors, No degree specified)	63
	243

Use

197 of the 243 password purchasers (81.1%), used their passwords for a total of $99,571 of search charges. This total includes the price increase that was implemented by NLM in February, 1991. The average use for the 197 was $505. The three highest users used $16,377; $8,131; and $7,735; with the fourth highest doing $3,294 of searches. If all persons who purchased a password are considered, then the average use was $410. If the three users who spent over $7,000 each were excluded, the average would be $281.

It is also possible to examine use by the highest degree of the user. On an individual basis, persons with PhD degrees used more than password holders with MD and DDS degrees ($487 vs $275 and $349). Since most of the PhDs are involved in basic science research at the UTHSCSA, this is not surprising. If the charges for the one person who did $16,377 of searching are excluded, the average use of all other persons who did not hold MD, PhD, or DDS degrees is $438. However the differences were not statistically significant. The seven students who purchased passwords used an average of $145 of searches.

Comparison of Usage with Regular Holders of New Passwords

During the first half of the Project period (April 1990 - September 1990), NLM distributed regular password access codes to 63 individuals in Texas. Regular passwords include a $40 credit to encourage new users to experiment with the system. Twenty-one codes exceeded the credit given with each new code and incurred bills for $2581.46 of online search time. When the $840 free credit is added to this amount, the actual cost of their searches comes to $3421.46. The average use for this group is $163.

Twenty-six persons used less than the $40 credit and actual costs were not available to us. If one assumes that the 26 users each used $39.99 of search time and that amount is added to the other total, then the total use is $4461.20, or $95 per user. Conversely if one assumes that the 26 used only $1 of search time, the average cost for the 47 users would be $73. Thus this group used an average from $73 to $95.

Sixteen of the regular passwords were not used during the Project period ending April, 1991. If the 16 persons who did not use their passwords at all are considered, the maximum average use of the 63 individuals is $71 and the minimum average use is $55.

Thus we can compare the average use of all GM/STMP password holders ($410) with the average use of new holders of regular passwords ($55 to $71). It is obvious from these figures that participants in the GM/STMP searched more than persons who knew they would be billed for each search. GM/STMP participants used more than five times the amount of online time, as measured in dollars, than did non-participants.

Comparison of Usage with University of Washington Password Holders

The University of Washington Health Sciences Library & Information Center at Seattle (UWHSLIC) participated as a test site in the NLM "flat-rate password" program which allowed unlimited searching of the NLM databases for a flat rate of $100 per password for a 12-month period beginning September 15, 1989. [56] Their agreement limited sales of passwords to persons affiliated with the University of Washington. The University of Washington has all components of the University located in Seattle, with a total student body of over 33,000. At the time of the project, the Health Sciences Library did not have a local MEDLINE subset available.

The UWHSL IC set a target of 500 passwords; 441 were sold and 407 were used (92.3%). [57] During the 14 month period, a total of $267,398 of searching was done with 7,874 connect hours. In order to compare UWHSLIC rates with those of UTHSCSA, the fourteen month use is converted to a twelve month equivalent. The UWHSLIC average use by all password purchases, regardless of whether the code was used is $516 for 441 users. In contrast the UTHSCSA average use was $410. If only active users are compared, the average use for UWHSLIC users is $564 for 407 users whereas comparable figures for UTHSCSA was $505 for 197 users. Another factor must also be considered which has not been accounted for in the comparison. NLM changed its MEDLARS charging formula in February 1991, so the average per hour charge to UWHSLIC was based on different prices than that of UTHSCSA. Two reasons probably account for the UTHSCSA's lower numbers: miniMEDLINE and the inclusion of non-University affiliated password holders. Persons affiliated with academic institutions probably use MEDLINE more than non-affiliated persons. UTHSCSA also had a lower percentage of active password users.

The UWHSLIC reported that the flat-rate project caused a drastic drop in mediated searches of 70%. This was not the case at the UTHSCSA where the drop was less than 20%. The University of Washington mounted the current 5 years of the full MEDLINE file on its campus UW REFERENCE LIBRARY in June 1990. The UWHSLIC flat-rate program was extended an additional six months after the project ended in November 1990. [58]

Student Password Use

The special third year medical student MEDLINE password project offered free searching to 63 students from July through April, 1991. Only 26 students actually picked up a password. Of the 26, only 17 actually used their passwords, for an average use of $24 based on the half-price student rate. A brief survey was mailed to the 26 participants in June, 1991 and six were returned (23.1%). The responses reflected that the passwords were used rarely by four of the six, mostly for preparing a presentation or paper. Three of the six found GRATEFUL MED somewhat difficult to use. The students indicated they were willing to pay from zero to $2 per search or from zero to $10 per month. Five of the six indicated they had used miniMEDLINE and three had used CD ROM systems. Only one of the six students considered that he became more experienced searching after using his password; he used it monthly.

5C. Project Survey and Renewals

On April 2,1991 UTHSCSA staff sent letters to GM/STMP participants describing three options available to them at the end of the GM/STMP: to renew under the new conditions set by NLM ($150 for six months of searching if a minimum of 200 participants renewed); to convert the flat-rate password to a regular, monthly billed password; or to cancel the password. A two page questionnaire, asking for opinions of the Project and of the GRATEFUL MED software was also included. The letter requested that the form and questionnaire be returned by April 15, 1991.

One hundred forty-three (143) of the 243 participants returned the evaluations that were mailed with the renewal letters, for a 58.8% response rate. No follow-up letter was mailed. The results of the survey are in Appendix E. As expected, the more frequent users were more enthusiastic about the project. Table 34 shows the satisfaction with the Project.

Table 34
Frequency of MEDLINE Use and Satisfaction with Flat rate Access
(N=137)

	Satisfaction					
Use Frequency	Very satisfied 1	2	Neutral 3	4	Very Dissatisfied 5	Total
Daily/Weekly	59 (83.1%)	10 (14.1%)	1 (1.4%)	1 (1.4%)	0	71 (52%)
Monthly	26 (59.0%)	16 (36.4%)	1 (2.3%)	1 (2.3%)	0	44 (32%)
Rarely/Never	8 (36.4%)	7 (31.8%)	4(18.2%)	3(13.6%)	0	22 (16%)
Total	93 (67.8%)	33 (24.1%)	6 (4.4%)	5 (3.6%)	0	137

On a scale of 1 to 5, with 1 being "very satisfied" and 5 being "dissatisfied," 91.8% of the total responses were 1 or 2. 97.2% of the daily or weekly users marked 1 or 2, 95.4% of the monthly users and only 68.2% of the "rarely or never" category gave those responses.

Although the Memorandum of Understanding signed by all purchasers stated that the passwords were for individual use, in the follow-up survey 41% of the password holders said others had used their password and 49% had done searches for other people as well as for themselves. UTHSCSA Library staff made no attempt to curtail usage except to emphasize to purchasers and potential purchasers that passwords were meant for use by individuals and were not to be shared. If NLM institutes flat-rate passwords, this will be a problem that they must anticipate. Many users appreciated the fact that NLM would be looking at usage, and basing future flat-rate charges on it. They understood that if they abused their password by sharing it, future charges might be affected.

Respondents were asked to suggest what they thought would be a "reasonable" charge for a flat-rate MEDLINE password. The mean of the responses was $151.61 and the median was $150.00. A breakdown of the responses is shown in Table 35.

Table 35
What do you think is a reasonable charge for the flat-rate program?
(N=143)

Amount	Frequency	Percent
0	28	19.6
50-100	4	2.8
101-150	18	12.6
151-200	50	35.0
201-250	11	7.7
251-300	8	5.6
301-400	2	1.4
>401	6	4.2
[No response]	5	3.5

The amount actually used was correlated with the amount indicated as a so-called "reasonable" charge. The Pearson correlation coefficient was .22 ($p< .001$) indicating that those who actually spent more with the flat-rate access code tended to indicate a higher charge than those who used the flat-rate access code less.

The respondents were asked to rate their experience as a user of online databases BEFORE and AFTER participating in the program. Table 36 shows the change in ratings.

Table 36

Cross tabulation of Previous and Current online DataBase Experience

Frequencies (N=142)

Previous Experience		Current Experience					
		Not at All Experienced 5	4	Neutral 3	2	Very Experienced 1	Total
Not at All Experienced	5	4	4	25	8	3	44
	4	0	2	13	13	3	31
Neutral	3	0	1	8	14	8	31
	2	0	0	0	13	11	24
Experienced	1	0	0	0	0	12	12
Total		4	7	46	48	37	142

As can be seen in Table 36, those who were not at all experienced with online data bases before the flat-rate program tended to increase their experience base. Of the 44 indicating no experience, all but four increased in their experience, with 25% indicating very experienced. The relationship in this table is significant at the .01 level.

Respondents were asked to indicate whether they had experience using other systems. Ninety-two (64.3%) had used miniMEDLINE, 57 (39.9%) had used CD-ROM systems,15 persons had used AMANET and 19 persons had used BRS. When asked if participation in the flat-rate program had affected the use of these systems, 61 (42.9%) said no significant change, 47 (32.9%) said they used these systems less, and 15 (10.5 %) had used these systems MORE! In response to the question about whether the flat-rate program had affected the number of MEDLINE searches run for them by a librarian, 46 (32.2%) said no significant change, 77 (53.8%) said fewer searches were run, and 6 (4.2%) felt more searches were run. The respondents gave many suggestions concerning the program, many of which were extremely positive. Appendix C includes the questionnaire with results and comments.

Training

The survey included a question about the type of training that was used to learn GRATEFUL MED. Overall, 42.7% of the respondents indicated that they had received training. The specific methods of training are shown in Table 37.

Table 37
Method of Training
(N=61)

Method	Frequency (Percent)
Group training	50 (82.0%)
One-on-one	3 (4.9%)
Tutorial	2 (3.3%)
Demonstration	2 (3.3%)
Other	1 (1.6%)
Not Specified	3 (4.9%)

Responses to each question in the survey were compared between the persons who had indicated receiving training and persons who had not answered the training question. No statistically significant differences were found between these two groups.

Project Renewal Options

Ninety-four persons requested password extension at the new rate proposed by NLM; 46 persons indicated they wished to convert to regular passwords. This response would have probably increased both follow-ups. On April 25, 1991 UTHSCSA staff notified all GM/STMP participants that less than 200 persons had requested extending their passwords as required by NLM for renewals of the flat-rate program. The 94 participants were offered the option of converting their flat-rate passwords into regular billed ones. Thirty-five of the potential renewals took advantage of this offer, in addition to the 46 who had already requested to convert their passwords, for a total of 81 continuing users. Thus 33.3% of the 243 GM/STMP flat-rate password purchasers changed to a regular password. No follow-up of subsequent use has been attempted.

Comparison with University of Washington User Survey

The UWHSLIC distributed a brief questionnaire to their flat-rate project participants in late August, 1990 to determine the value of the program to the participants. [59] One hundred seventy-eight questionnaires of 444 were returned for a response rate of 40.1%. UWHSLIC staff felt this was an excellent response considering the summer distribution. No information about follow-up was mentioned. The response rate for the UWHSLIC was less than the 58.8% response to the UTHSCSA. This may have been due to the timing of the UTHSCSA survey being sent in April in conjunction with the ending of the flat-rate program.

UWHSLIC respondents also indicated more sharing of access codes with only 25% reporting that they had not shared their code with anyone. At UTHSCSA 59% reported they had not shared their code. Sixty-four percent of UWHSLIC respondents indicated they had done searches for other persons as compared to 49% of UTHSCSA respondents. The UWHSLIC summary of the results indicated extremely high satisfaction with the project with 94% indicating that they would participate again if the program were offered. However, unlike the UTHSCSA survey, participants were not required to immediately respond if they wished to continue at double the cost. The mode of the UWHSLIC responses regarding a reasonable charge for the flat-rate was $120 which was less than the UTHSCSA median of $150.

5D. GM/STMP FOCUS GROUP

One focus group to discuss the GM/STMP was scheduled on short notice in June, 1991 to discuss the impact of the project. Although additional focus groups might have been helpful, none were scheduled because of time limitations. The following questions were asked:

Previous Use

1. How did you typically have MEDLINE searches done prior to the flat-rate program? Did you do them by yourself or did you request them through a library/librarian? *(If any did them on their own, ask the following questions)*

    a. What software did you use to access the MEDLINE database?

2. Now that you all have GRATEFUL MED and do searches on your own, what is the benefit to doing searches on your own?

Positive/Negative Features of GRATEFUL MED and Suggested Changes

3. What do you like best about GRATEFUL MED?
4. What do you like least about GRATEFUL MED?
5. How would you change the software program to make it better?
6. What have you liked and disliked about the flat-rate program?

Reasons for Use (MEDLINE)

7. What are your primary reasons for using MEDLINE?
8. Describe how the service has helped you provide better patient care.
9. Describe how the service has helped you in professional activities such as teaching, publishing, presentations, CE, etc.)
10. How would you encourage more people to use MEDLINE?

Future Use

11. How do you plan to use MEDLINE on your own in the next year?

GM/STMP Focus Group — UTHSCSA Physicians
Wednesday, June 26, 1991, Noon - 1:30 p.m.
5 participants [35+ invited]

Previous Use

Prior to participation in the year-long flat-rate password program, these physicians used miniMEDLINE, the SilverPlatter MEDLINE CD-ROM, or requested searches through the librarians at the UTHSCSA Library. One participant specifically mentioned never requesting a librarian-mediated search because it was a fee-based system. Other participants who did sometimes request searches from librarians cited problems — unfocused searches, difficulty in explaining to librarian what is wanted, and costs.

Advantages to using GRATEFUL MED and the Flat-rate Program

One physician indicated that the program expanded his use of MEDLINE in a number of ways — patient care and teaching. In patient care situations, it is possible to do searches quickly to find relevant citations, he said. In teaching situations, the program was used to encourage students to use MEDLINE and helped form a journal club while identification of grants-related information was helpful in the research area. This physician added that he recommends miniMEDLINE use to students to encourage "independent learners" who learn to identify a problem and then to seek out the current literature.

Another participant said the flat-rate program was a "clinically valuable tool" and a timesaver.

"One flat fee would make it easier for me to get reimbursement from my department since it would not be an unknown amount," said the physician. [Other participants did not necessarily feel that their departments would reimburse for such items.] Another advantage of the program was the "increased ability to search when needed," said the physician, and not to feel motivated or hindered by costs. The problem with the program cited by this physician was the indexing: "Like miniMEDLINE, the problem is there is not a perfect indexing method and some MeSH headings are inadequate." However, the physicians pointed out that being able to do their own searches allowed them to "refine" a search strategy and achieve more precise results; this was something they felt was not possible with librarian-mediated searches they had done in the past that were not what they expected.

Overall, all participants said that the major advantage was that cost was not a deciding factor in determining whether or not to search as the most positive point of the project. "It saves man hours and keeps me from having to spend time in the library," said one physician. Another said that information found in his searches is a "better investment than a journal club" because the searches identify particular articles.

GRATEFUL MED

Among the positive aspects of GRATEFUL MED cited by the physicians: user-friendly, does everything for you including calling, offers convenience and control, can search directly from home or office or lab, can do several "refining" searches to pinpoint what strategy is needed. Also the physicians said that the speed of doing their own searches in patient care situations is extremely helpful. "We can do a search and have the article hit the floor before the patient does," said one physician.

Some of the GRATEFUL MED features disliked: some indexing practices, difficulty in mastering Boolean logic, defaults in the search software and making changes, lack of a break key, and lack of a data management/database component. None of the focus group participants took part in any GM/STMP training. Instead they read manuals and used the tutorial.

Reasons for Use

Numerous reasons for use were cited:

- to search for clinical trials of new drugs to treat Alzheimer's Disease, to determine whether or not the drug was valuable in treatment;
- used by residents to evaluate consults;
- to find case reports on unusual patient cases;
- to get abstracts (which are not available in miniMEDLINE);
- to get current information on treatments, complications, drugs, etc.; and
- to gather information on the utility of diagnostic tests.

These physicians indicated that using MEDLINE to make a diagnosis is not possible since searching for "symptoms" is a bottomless pit.

Encouraging Use

The participants indicated that a flat-rate program would best be promoted by word-of-mouth among health-care professionals and through more aggressive advertising of the program that clearly indicates you will be able to search the full MEDLINE database. [Some participants indicated that colleagues thought the program was to search UTHSCSA's miniMEDLINE database.]

The participants suggested that NLM study the possibility of a tiered flat-rate program — with varied rates for student, infrequent users, and frequent users and departmental accounts.

Another suggestion was to market the flat-rate as a "subscription" through direct mail to health care professionals. For example, to offer moderate users a $300 flat-rate for one-year of searching with a $1,000 cap. Make it comparable to the subscription of an average medical journal, said one physician. Other suggestions were to enhance the bulletin board and to offer advanced training workshops.

Focus Group Summary
Participants in the GRATEFUL MED/South Texas MEDLINE Focus Group expressed their perception of the flat-rate experimental program.

- The ability to search MEDLINE from their own personal computer increased their usage of the medical literature. Some noted they avoided librarian-mediated searches in the past because it was difficult to get a librarian to understand what they wanted; using GRATEFUL MED they could do several searches to refine a strategy if needed and, therefore, were not dependent on a librarian.
- Participants saw the flat-rate as an advantage to increased searching since the decision to search is not driven by cost factors. All participants clearly felt that NLM should offer a flat-rate program, perhaps in a tiered structure for students, low users, heavy users, and departmental accounts. Another suggestion was to market such a program as a "subscription" to MEDLINE.
- GRATEFUL MED software is well-liked as user friendly. Suggestions mentioned were for additional advanced training and an enhanced bulletin board.

5E. GM/STMP TELEPHONE INTERVIEWS

Users
Seventeen individuals who purchased a flat-rate password used more than $1,000 worth of search time. These individuals were contacted by phone and interviewed. Of the 17, two had moved and three were out of the country. Of the remaining twelve, eight were interviewed and the other four were phoned on three occasions, but no contact was made.

Ten questions were asked of each participant who was interviewed. The questions were:

1. Why did you purchase a flat-rate password?
2. What types of searches did you primarily do?
3. How important was the flat-rate program for getting you to use MEDLINE?
4. Have you continued to use your password after it expired? If not, why not?
5. What did you like most about GRATEFUL MED?
6. What would you change about GRATEFUL MED?
7. Do you ever have a librarian do searches for you?
8. How do you get articles from your searches?
9. Have you heard of Loansome Doc?
10. Do you have any suggestions that might encourage more people to use GRATEFUL MED?

Why did you purchase a flat-rate password?
All of the respondents bought a password because of the great value they felt it represented. Given the low cost of $110.00 they all knew they would use at least that much computer time. Several individuals purchased a password so that they could just try it out to see what it was like. Most said that they had used Index Medicus and SilverPlatter MEDLINE but had wanted more power in their searching capability. Each of

the respondents said that they used the password for research and one individual used the password for teaching purposes. This individual said that after using MEDLINE for teaching purposes, he was addicted to the service and did not know how he could ever teach without it.

What types of searches did you primarily do?
One respondent was a librarian at Brooks Air Force Base and had purchased the password in order to check indexing. All of the others searched MEDLINE for their own research. One individual used almost $17,000 researching memory and neural anatomy. This individual who was not located near a medical library said that he had downloaded over 70,000 references and abstracts which took up 120 megabytes of memory. He said that he was connected to the database for 30 hours per week for one year. He also said that using the flat-rate password had literally saved him several years in terms of how he had been searching the literature.

How important was the flat-rate program for getting you to use MEDLINE?
Extremely important. Most said they never would have searched MEDLINE without a flat-rate password because being connected to a computer far away is intimidating if you are not quite sure about what you are doing. None of the respondents wanted to be in a position where they would have to "pay for their own mistakes."

Have you continued to use your password after it expired? If not, why not?
Most had continued the password although they all stated they would prefer a flat-rate. Of those who did not renew their password it was because of the increased rate.

What did you like most about GRATEFUL MED?
•The ability to use at any time of the day or night — one did not have to wait for the library to open.
•Simplicity of accessing the database and the depth of the resource.
•Availability of abstracts.
•Greater magnitude of searching compared to miniMEDLINE.

What would you change about GRATEFUL MED?
Several stated that they felt GRATEFUL MED could be even more flexible. One said that you did not always find the same articles even though you did the same search — this individual said they tested this out several times and was surprised at the discrepancies found.

Do you ever have a librarian do searches for you?
Users no longer requested searches from librarians. However, for those users who had monthly updates done, they continued this service.

How do you get articles from your searches?
All of those who lived in San Antonio used the the UTHSCSA Briscoe Library and retrieved their own articles and/or books. If the article was not in that library they requested it via interlibrary loan. Those who did not live in San Antonio used the Texas Medical Association Library service to receive articles/books.

Have you heard of Loansome Doc?
All had heard of Loansome Doc although not all knew exactly what it was. Several said that they hoped the UTHSCSA Briscoe Library would get involved with this program.

Do you have any suggestions that might encourage more people to use GRATEFUL MED?

The flat-rate password was given as the number one reason to use MEDLINE. Each individual stated that without a reasonable charge, MEDLINE would not be used. All agreed that $110 was extremely cheap and felt that a rate of up to $500 could be charged per year for unlimited use.

Another suggestion was that full text with graphics on line would be a major plus. A third suggestion was that people need to be aware of what miniMEDLINE, Silver Platter MEDLINE, and BRS Colleague are. The library should advertise what the differences are between these systems so that users will know which is best for them.

Non-Users

Forty-seven individuals purchased flat-rate passwords but did not use them. Of these, 20 were randomly selected and contacted by phone. Seven questions were asked of each participant who was interviewed. The questions were:

1. Why did you purchase a flat-rate password?
2. Are there any reasons why you did not use your password?
3. Are you still interested in doing your own MEDLINE searches?
4. What would you change about GRATEFUL MED?
5. Do you ever have a librarian do searches for you?
6. Have you heard of Loansome Doc?
7. Do you have any suggestions that might encourage more people to use GRATEFUL MED?

Why did you purchase a flat-rate password?

All of the respondents bought a password because they felt it was a good value. In addition, two individuals said that the AMA-Net had been discontinued and they needed some other way of accessing information.

Are there any reasons why you did not use your password?

Two reasons were consistently given for not using the password. First, many individuals had problems with their modem and were never able to log on. Second, most of the individuals said that they did not have the time they thought they had to use the system, let alone trouble shoot problems such as the modem.

Are you still interested in doing your own MEDLINE searches?

Nearly all of the respondents said that they preferred to have a librarian do the searching for them. They felt that this method was more cost effective and expedient. One individual said that although he had not used the flat-rate password, he has renewed and has used his new password quite a bit. He said that some things occurred in his practice during the flat-rate password subscription time that precluded his using the system.

What would you change about GRATEFUL MED?

All of the respondents felt that learning how to use the software on their own system was not as easy as they had hoped. The technical difficulties with the modem was the particular trouble spot. Nevertheless, all of the respondents were hesitant to criticize the program too much since they had never really used it.

Do you ever have a librarian do searches for you?

Most did use librarians to search for them and preferred this to searching on their own.

Have you heard of Loansome Doc?

Eight of the respondents had heard of Loansome Doc. Six of these did not know anything about it.

Do you have any suggestions that might encourage more people to use GRATEFUL MED?

The number one suggestion was to develop software for a modem that is easy to use and works. All of the respondents said that they would prefer to pay for searching as they go. That is, a password at a higher rate was not appealing to them (as it was for the heavy users). The less frequent user wants to pay for what they use and nothing else. Users also felt that a toll-free helpline would be of benefit. [They seemed unaware that one exists.]

5F. GM/STMP DISCUSSION

The GM/STMP flat-rate MEDLINE password access project was both exciting and frustrating: exciting because it was a new approach which forced the UTHSCSA Library staff to look at what we were doing in a different way, frustrating because we did not have enough time and staff to do all that we wanted to do. The period of this project was very unusual for the UTHSCSA Library in that several librarians resigned and were not immediately replaced due to budget constraints.

Project Objectives

Three objectives had been established for the project: to increase the use of the medical literature through end-user access, to save money for UTHSCSA users and the Library, and to increase outreach to area health care professionals. These three objectives were easily met. The 243 persons who obtained MEDLARS passwords increased the number of individual password holders in the region by 39%. For a total investment by the UTHSCSA Library of $30,000, password holders received $99,541 of searching. UTHSCSA Library staff also used over $2000 of demonstration time introducing GRATEFUL MED to people. Because of this project, several outreach activities were initiated including a needs assessment survey, continuing education courses, and a series of library orientations for area health care practitioners.

Sales

The UTHSCSA Library set a goal of 300 persons purchasing GM/STMP passwords; 243 were sold. Had circumstances been different, the target might have been met. For example, there were some promotional activities which were not pursued due to lack of time and staff. We also had anticipated that there would be more sales to persons not connected with the UTHSCSA. A major factor in the lack of sales may have been the availability of a local subset of MEDLINE, miniMEDLINE, which has been available to persons affiliated with UTHSCSA at no charge since 1983 at fourteen terminals in the Library and through remote access. A CD ROM system, SilverPlatter MEDLINE with five years of full MEDLINE, was installed in the Library in 1989. In initiating the GM/STMP we were very uncertain about the number of passwords we would sell because most UTHSCSA users seemed satisfied with miniMEDLINE and had not been pressuring the Library to have a more extensive database.

Contrasting GM/STMP users to miniMEDLINE and SilverPlatter MEDLINE users was beyond the scope of this project. However, an online survey of miniMEDLINE use was conducted in March-April 1991 which helps place the GM/STMP use in context. The miniMEDLINE survey was programmed so that the first time a person logged into miniMEDLINE during the survey period, he or she was trapped and forced to answer seven questions. Once these questions were answered, the user was released and the questions did not again appear for this user. Thus we are confident that the survey results reflect unique users of miniMEDLINE during the survey period. We were surprised and gratified that 1528 persons answered the miniMEDLINE survey between March 16 and May 1, 1991. Obviously many more persons are using miniMEDLINE than purchased the GM/STMP passwords. Use statistics on miniMEDLINE have been reported to NLM for many years. Factors which facilitate miniMEDLINE use are its being free and available at fourteen terminals in the Library.

The decision to add a $10 surcharge to the $100 flat-rate charge was good, since sales fell short of the agreed upon amount. Most persons did not already own GRATEFUL MED software, so many purchased the combination package of software, password, and training at $160. Selling the software meant that the Library had to collect state sales tax which was a new requirement for us.

Factors Influencing Persons to Purchase a Flat-rate MEDLINE Password

The focus groups, telephone interviews, and comments on the 1991 survey indicate that the major reason for interest in the GM/STMP password was its value. For example, one survey respondent wrote:

> "This is an outstanding program. It allows access to a tremendously valuable resource which may have otherwise been non-affordable. The ability to use/learn this system has been one of the most significant events of my academic career. I strongly urge and support the continued option for a flat-rate, reasonably-priced GM access to NLM".

Another major factor was the convenience of remote access as described in the following quote:

> "This program allows me access to medical searches/literature as a clinician in an area where there is no medical library, no medical school. I am now able to do my own searches then requisition the material through UTHSC, San Antonio. It has allowed access to medical literature."

The focus group and telephone interviews are part of the body of this report. The comments from the persons who responded to the April 1991 GM/STMP survey appear in Appendix E, and give a more complete view of the satisfaction level. The overall result of the project has been very positive.

Use

The GM/STMP participants used an average of $410 of searches as compared to the range of $556 used by UWHSLIC password holders and $71 used by regular MEDLINE password holders who received passwords between April and November 1990. No attempt was made to match users by professional status and activity. It is probable that the GM/STMP had more PhDs than did the regular password group. The University of Washington flat-rate users used an average of $516 of searching in the first fourteen months of their project. A few heavy users of passwords can skew the results dramatically. Three persons used their GM/STMP passwords for amounts varying from $7735 to $16,377. If these persons were excluded; the average GM/STMP use would have been $281.

Physicians represented 53% of the password purchasers, dentists 2%, PhDs 19%, and others (including librarians) 26%. The average search amount used by PhDs was $487 versus $275 for MDs and $349 for dentists. The differences were not statistically significant. Comparisons by degrees with University of Washington participants was not available.

Eighty-one percent of the password holders used their password, which is less than the 92% use at the University of Washington. Of the 143 persons who responded to the survey at the end of the project, 52% checked that they used their password daily or weekly, 32% used it at least monthly, and 16% used their password rarely of never.

The students who participated in the special Third Year Medical Student Project used an average of $24 during the ten months that they had passwords. We were very disappointed at the lack of use although we were relieved not to have had to pay for a lot of use. If a faculty member had supported this project and encouraged student use, the results would have probably been different. Only seven persons who identified themselves as a "student" purchased the flat-rate password.

Satisfaction

A two-page questionnaire was mailed to all GM/STMP subscribers in April, 1991. One hundred forty-three persons (58.8%) responded. As expected, the more frequent users were more enthusiastic about the project, with 83% of the Daily/Weekly users being very satisfied versus 59% of the monthly users. We are not sure how to interpret the results that 36% of the "Rarely/ Never" users were also very satisfied! Overall, 91.8% of the total responses were either 1 or 2 on a scale of 1 to 5 with 1 being "very satisfied" and 5 being "very dissatisfied". The five participants in the focus group said that the major advantage was that cost was not a deciding factor in determining whether or not to search.

Twenty non-users were interviewed by telephone. All had purchased the password because they thought it was a good value. Two reasons were consistently given for lack of use: not enough time and problems with modems. All of these respondents concluded that they would rather pay for searching as they used it.

Training

One hundred twenty-six persons participated in training sessions offered by UTHSCSA librarians in conjunction with the GM/STMP. Of these, 19 persons attended four-hour courses with CME credit which were held on three Saturday mornings in April, June and August. There were 107 persons who attended one of 45 two-hour non-credit courses held during the week during the first part of the project. These courses were offered to anyone that signed up for a password but they were not heavily promoted.

The response to the CME classes on GRATEFUL MED was less than expected. However considering the limited promotion that was done, and the busy schedules of physicians, we perhaps should have expected a low turn-out. The response to the two-hour training classes which were given at no charge to persons who purchased the $160 GM/STMP package was much better. The 107 participants of these sessions represented 44% of the persons who purchased passwords.

5 G. FLAT-RATE PASSWORD ACCESS CONCLUSION

The GM/STMP project was a turning point for the UTHSCSA Library staff. The project clearly demonstrated that it was not a simple matter for the Library staff to mount a major promotional campaign for a new service if the service was not "free". The UTHSCSA Library's commitment to spend $30,000 affected the project by placing considerable pressure on the staff to sell passwords. The funding for the NLM-UTHSCSA evaluation project helped to alleviate that pressure. The flat-rate access fee of $110 was a bargain when one considers the options that it provided, yet only 243 persons purchased passwords in an area with 5000 physicians and more than 1000 UTHSCSA faculty members. Probably UTHSCSA Library staff were naive to think that one or two mailings would result in hordes of persons. Library staff also underanticipated the time required to initiate a new project and the personal consultation that was required for many of the purchasers. As noted before this project coincided with a period of unusually high personnel turnover at the Briscoe Library which probably had a major effect on our experiences. Additionally the economic difficulties of our institution affected our concentration on this project.

Of particular concern to UTHSCSA Library staff is that students at the UTHSCSA learn to efficiently access the biomedical literature as part of their education. The UTHSCSA Library has been unsuccessful in having anything more than one or two hour orientations included in the medical school curriculum. We have had more success with nursing faculty including information management techniques in their courses and with the dental graduate programs. Northup et al reported that physicians respond to information problems along known pathways, which are probably established fairly early in a medical career[60]. The purchase of flat rate MEDLINE passwords by so few students and the lack of utilization of the student passwords which were issued at no charge was discouraging and made us consider alternative options for expanding access to MEDLINE.

UTHSCSA Library staff concluded as a result of the GM/STMP, that in order to expand access to the full range of MEDLINE, we could not rely on GRATEFUL MED access. We decided that it was desirable to purchase a networked full-MEDLINE system with a fixed annual price which could be managed from the Library. Therefore in July 1991, UTHSCSA Library staff began the process of purchasing the PlusNet2 system from CD PLUS which will allow us, for an annual fixed cost, to provide MEDLINE and other databases. The impact of PlusNet on mediated searching, GRATEFUL MED searching, and miniMEDLINE by UTHSCSA faculty and students is unknown as the system became available within the UTHSCSA Library in January, 1992. The UTHSCSA implementation of PlusNet will include an annual subscription charge of $25 for faculty and staff, and no subscription fee for students. Much of the annual costs will be recouped by using PlusNet MEDLINE rather than NLM MEDLINE for mediated searching. Whether $25 is a marketable price is unknown; it is hoped by UTHSCSA Library staff that $25 is perceived as sufficiently low so that purchasing by faculty will be much more widespread than were purchases of the flat-rate MEDLINE access password.

Participation in the pilot flat-rate MEDLARS password access project of the NLM was an excellent opportunity for the UTHSCSA Library staff and it served as a major catalyst for change.

6. CONCLUSION

6A. METHODOLOGY

This project has used a variety of methods to describe the medical information availability and use in South Texas. Surveys were mailed to 846 physicians in two locations to obtain their perceptions of their information resources, methods of obtaining journal articles, and MEDLINE use. Requests received by the CLHIN staff over a nineteen month period were analyzed by status of requester, location of requester, and frequency of requests per requester. Focus groups were used to obtain opinions of CLHIN users at representative hospitals. Administrators were interviewed for their opinions. Use of the flat-rate MEDLINE passwords was analyzed by dollar value and by professional degree and was compared to participants in the University of Washington flat-rate program and to new holders of regular passwords from Texas. Surveys were mailed to flat-rate participants to assess their satisfaction with the program.

As stated in the Project Description, the project was not designed to rigorously test the effects of the CLHIN on Valley physicians or of the use of the flat-rate MEDLINE passwords on users. It was a quickly planned effort which took advantage of the initiation of two outreach projects in areas with high percentages of minorities. The project was very ambitious considering the time allotted (sixteen months). It would have benefitted from more planning in the initial phase and more follow-up in the evaluation phase. The consultants' review of the preliminary report was very helpful in focusing the areas of the report that needed more explanation. A follow-up review by the consultants would have been beneficial.

6B. RESULTS

The major findings of the needs assessment are as follows:

1. There is no evidence that differences in the health care profile affect the information usage of the physicians in the five counties. That is to say, the different types of patients seen and the types of illnesses did not appear to be dominant factors in information usage.

2. The statistically significant differences in information usage between the physicians in the Valley counties and the physicians in Bexar County are related to the use of MEDLINE and libraries. For both groups the primary information resources are personal collections of books and journals and consultation with colleagues as is true in most studies of physicians' information use. However, there were differences in use of libraries, MEDLINE and other databases, and awareness of information resources between the physicians in the Valley counties and Bexar County.

3. When asked why they did not search MEDLINE by themselves, physicians in both locations were consistent in their responses. The major reason that respondents indicated was that they did not know how to do MEDLINE searches by themselves. This response was consistent with there being no statistically significant difference in either groups' rating of their experience with using databases. These assessments of ability indicate that increased opportunities for training are needed, with a variety of options being available.

4. Although there was no difference between the availability of microcomputers or fax machines at office or lab between groups, there was a statistically significant difference between groups as to availability of microcomputers at home and at library. The differences were not large and should not affect promotion of GRATEFUL MED. Promotional material could include a discussion of type of personal computer and modem to purchase if a purpose of the computer was searching

the medical literature.

The major findings of the evaluation of the CLHIN program are as follows:

1. The Circuit Library program in South Texas has been effective in providing health information to an underserved area. This success can be measured by the users and administrators' positive comments in focus groups and telephone interviews.

2. The effect of the Circuit Library program in developing GRATEFUL MED users in the Valley is not measurable. Although some Valley physicians purchased flat-rate passwords, none were recorded as using the service very much. Several users said they preferred the Circuit Librarian to do searches and had no desire to search if the librarian could do the search instead. We do not know how many Valley physicians have regular GRATEFUL MED passwords.

3. The Circuit Library program has created a dilemma of being a costly "success". The current method of funding the program does not provide adequately for increasing services. The formula used in financing the CLHIN must be reexamined before new institutions are included in the circuit.

4. The generalizability of the CLHIN model of circuit librarianship is not clear. More information is needed on other circuit library programs and their utilization patterns in order to be able to judge the value of the CLHIN model.

5. The components of a successful circuit library program include (a) a circuit librarian with effective interpersonal communication and information access skills; (b) strong backup resources on which the circuit librarian can rely for consistent service, and (c) effective institutional liaisons as circuit institutions.

The major findings of the evaluation of the GM/STMP flat-rate password access project are as follows:

1. The project was successful in introducing people to GRATEFUL MED and self-searching of the full MEDLINE database. The change in ability of persons from "not experienced" in searching to various levels of experienced is statistically significant.

2. The major factors in motivating persons to purchase the flat-rate password were perceived value for price and convenience of access. These factors were mentioned both in the focus groups and interviews and in the written comments in the April 1991 survey.

3. The median "reasonable" charge recommended by participants for a flat-rate subscription was $150. Persons who used their codes a lot tended to indicate a higher charge than those who used the flat-rate access code less.

4. The use of the flat-rate password varied by professional training and academic affiliation. Search charges for the 243 password holders varied from zero to $16,377. The average annual search charge was $410. If the three passwords which had more than $7000 of use were excluded, the average annual charge would have been $281.

6C. LIMITATIONS AND OBSERVATIONS

The project was the first evaluation effort of this type undertaken by the staff of the UTHSCSA Library and as such was a major learning effort. The results of the baseline study were based on self-report and therefore must be interpreted with caution. However, the consistency of responses to the project questionnaire with other information use studies lends credibility. The responses to the open-ended questions on information problems should be categorized and tallied. Future use questionnaires should also ask if the respondent is in solo or group practice. Shorter questionnaires would probably have a better response rate. Two follow-up attempts which include questionnaires are valuable in improving response rates. Follow-ups which do not include a new copy of the questionnaire are essentially useless.

The evaluation of the CLHIN transactions is probably of limited value since the transactions were not categorized. A better methodology needs to be developed to assess the impact of the service. Other records from the CLHIN such as the document delivery requests might be of more value in identifying the types of information resources needed. An analysis of the MEDLINE searches done by the circuit librarian would also be useful.

The survey of the flat-rate MEDLINE password users should have included at least one follow-up. The comments of the persons who responded to the survey should be categorized and tallied. The evaluation portion of the flat-rate password study would have benefitted from the attention which was lavished on the needs assessment survey.

7. IMPLICATIONS

7A. CIRCUIT LIBRARIAN PROGRAMS AS OUTREACH

The project provided many examples of the effectiveness of the circuit library concept. An experienced librarian, equipped with a computer and service philosophy, can utilize remote resources effectively. The circuit librarian concept works, particularly when participants do not have to pay the full costs of the service.

Further study is needed on the components of the circuit librarian service. Brief reports of other circuit programs in Appendix C indicate that some programs have reduced their activities. An inventory of circuit librarian programs, as well as contract library programs that are operated by hospitals and academic health science center libraries should be compiled. A comparison of use of representative programs should be made. Particular attention should be given to the economics of these programs. NLM might consider convening a symposium with representatives of circuit programs with the goal of developing a core training program for new circuit librarians.

The NLM could consider supporting an expansion of the CLHIN program to enable service to be extended to the community health centers where most of the indigent patients are treated. This would require additional staff and the evaluative component should be refined, building upon what has been learned through this project. This could be combined with the second phase of the AHEC program in the Lower Rio Grande Valley.

If NLM is desirous of promoting circuit librarian programs, the extramural program's Resource Project Grant program could be modified. A request for applications could be issued which emphasizes the role of circuit and outreach librarians and provides for salary support.

7B. PROMOTING THE USE OF MEDLINE

- **FLAT-RATE PASSWORDS**

The UTHSCSA flat-rate MEDLINE password project introduced over 200 persons to GRATEFUL MED searching. Flat-rate programs have clearly been successful at increasing the number of persons using GRATEFUL MED and MEDLINE passwords. The recently announced NLM flat-rate program with the American College of Physicians (ACP) offers a flat-rate of $200 for unlimited searching and appears to include a copy of the GRATEFUL MED software. It will be interesting to follow the development of the ACP project.

NLM should consider making the flat-rate program available for any organization which wants to sponsor it, with clearly defined qualifications. For example, the UTHSCSA agreed to pay for 300 passwords at $100 each, regardless of how many were sold. What number has the ACP agreed to guarantee? The UTHSCSA could extend its flat-rate program only if 200 people agreed to continue at $150 for six months with a cap of $500 of searching. Has a decision been made about second year extensions for the ACP program? In other words, when the UTHSCSA participated in the flat-rate program it was viewed as an experimental project which might not be continued. Is the NLM flat-rate program still considered experimental? The medical library community is interested in the development of this option.

- **GRATEFUL MED PROMOTION BY LIBRARIANS**

Since 1990 the NLM has funded a number of outreach projects which proposed using a variety of methods to introduce GRATEFUL MED and MEDLINE to area health professionals. Some of these included giving GRATEFUL MED away at no charge plus free documents. The results of these projects should be analyzed to provide a composite picture of the effects of promoting GRATEFUL MED. The needs assessments which were done in conjunction with the outreach contracts should also be analyzed as a group.

Through this project we learned a great deal about GRATEFUL MED and are very positive about the software. However we perceive that many librarians are not enthusiastic about GRATEFUL MED, perhaps because they are unfamiliar with the capabilities of the upgraded software. Perhaps it would be useful to survey a sample of hospital and academic health sciences libraries to discover if these perceptions are correct and if librarians have suggestions that could be incorporated.

Health professionals receive many types of promotional materials. Although Library brochures and announcements may be attractive, they still compete with more expensive advertising. Librarians could benefit by a market analysis of target groups which identify the most effective means of sending the message about the importance of access to the medical literature. Perhaps the NLM or the Friends of the NLM could commission such a study and then hold informational seminars for librarians encouraging more effective promotional activities.

Incentives for librarians who sell GRATEFUL MED and MEDLINE passwords should be developed. Currently there is no incentive for librarians' obtaining GRATEFUL MED software from NTIS and serving as a local source. The option exists for interested persons to order the software from NTIS but that is not as attractive as having the software at hand and immediately available, even at a higher price.

- **MEDLINE ACCESS THROUGH LOCAL LIBRARY SYSTEMS**

While this project increased UTHSCSA Library staff's enthusiasm for GRATEFUL MED, it also served as the catalyst for the UTHSCSA Library purchasing the CD PLUS PlusNet2 system. NLM might survey a sample of hospital and academic health sciences libraries to identify the reasons for decisions to not depend on GRATEFUL MED or online access to NLM, BRS or DIALOG and instead opt for a local system.

- **MEDLINE USE BY STUDENTS AND RESIDENTS**

Only seven students participated in the UTHSCSA flat-rate MEDLINE password access program . This was not surprising as it was assumed that the $110 fee would discourage purchase of the passwords. What was disappointing was the small number of students that took advantage of the special third-year medical students free password program. An NLM initiative which encourages innovative programs for students and residents to use MEDLINE should be developed.

- **MEDLINE PROMOTION BY NON-LIBRARY ORGANIZATIONS**

There are an estimated 3500 medical libraries in the National Network of Libraries of Medicine. There are more than 600,000 physicians, 163,000 dentists, and 1,648,000 registered nurses. Reaching all of these people is difficult unless numerous organizations are mobilized. We believe that enlisting all health professional organizations in promoting informed health care decisions is desirable. Agreements with organizations such as the ACP should be encouraged and actively pursued. The medical library profession should be aware of this promotional effort and should work with the NLM to accomplish more alliances.

The results of the baseline survey of this project indicated that drug information was one of the major areas where information was sought by MEDLINE users. Drug information has consistently been identified as a primary need in studies of information usage by health care professionals. Several academic health science center libraries house Drug Information Units although most are under the purview of Schools of Pharmacy or Pharmacology Departments. NLM might consider a special initiative to work with pharmaceutical corporations and pharmacy schools with Drug Information units to develop better ways to reach health care practitioners. The "academic detailing" concept described by Soumerai and Avorn suggests an approach which could be considered.

Continuing education courses at national professional society meetings are a major way that health professionals learn new techniques. The NLM might consider working with various organizations to have GRATEFUL MED courses offered at these meetings.

7C. RESOURCE LIBRARIES

The National Network of Libraries of Medicine (NNLM) depends on strong libraries throughout the United States. The NLM has worked to improve these libraries resources in a variety of ways. Challenge to Action guidelines were published in 1987 by a Joint Task Force of the Association of Academic Health Sciences Library Directors and the Medical Library Association with funding from the Council of Library Resources and the National Library of Medicine.

As the outreach initiatives increase from the NLM, and as profound economic changes affect the United States, it is appropriate to ask how well the NNLM resource libraries are coping with the changes. Based on the experiences of the UTHSCSA Library staff with this project and the ongoing responsibility of the CLHIN, there are difficult times ahead. These pressures may account for some of librarians' distrustful and negative reactions to new initiatives from NLM.

The concept of change is easy to embrace; the reality of change is threatening. The health care status of the United States is widely and justifiably criticized. Health information has a role. If individuals' access to health information is to progress, some additional initiatives to strengthen the academic health sciences libraries of the nation should be undertaken. This could be through a special initiative of the NLM extramural program, through the outreach contract mechanisms, and through special symposia at the NLM discussing the challenges and developing solutions.

7D. FUTURE RESEARCH

Although the primary reason that NLM undertook this project was to improve its understanding of the needs for health information outreach services to minorities, we hope that this project has done more than accomplish that purpose. We hope that this project will serve as a catalyst to an extensive NLM program of research in medical librarianship in addition to NLM's focus on medical informatics. Such a program is consistent with NLM's long range plan to make information more accessible to health professionals by encouraging basic and applied research to identify health professionals' need for, access to, evaluation of and use of biomedical information. [61]

A first step to NLM embarking on a program of research in medical librarianship would be to commission a review of the various library projects which NLM has funded over the years. Such an evaluation was reported by Matheson and West in 1976. [62] The completion of the first group of Outreach Contracts in 1992 will provide reports on a variety of projects to introduce GRATEFUL MED to health care professionals. These reports should be examined as a whole as they might indicate common themes. In the 1960s Herner and Herner concluded that while information use study techniques were often extremely crude and precarious, they frequently produced useful and verifiable insights regarding use patterns and requirement, thus indicating that there may be certain use patterns that are so clear cut that they can be identified and confirmed by even the crudest of procedures. [63]

In their review of the preliminary report of this project, Johnson, Marsh, Pond and Rankin recommended that NLM take the lead in improving the general quality of applied library research by providing more guidance in research design, implementation, and evaluation. They also recommended that topics of service effectiveness be examined as library users tend to be satisfied with services such as the interventions examined in this project. What is less known, and as important, is the degree to which the user gets what is wanted, what is needed, and the extent to which the delivered information is used toward specific results. [Appendix A]

The UTHSCSA Library undertook the "Medical Information Availability and Usage in South Texas" project in order to have the opportunity to work with NLM staff on a research project. We consider the project to be very successful in answering the research questions posed and helping us make decisions about future directions for the UTHSCSA Library. Whether the project will have inspired us to continue with applied research in medical librarianship remains to be seen.

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APPENDIX A

CONSULTANTS' REPORT

"Medical Information Availability and Usage in South Texas"

Preliminary Report Review Meeting
August 18-19, 1991

PARTICIPANTS:

CONSULTANTS
- Donna Johnson, Abbott-Northwestern Hospital, Minneapolis, MN
- Spencer Marsh, Biomedical Library, University of S. Alabama, Mobile
- Fred Pond, Dana Biomedical Library, Dartmouth, Manchester, NH
- Jocelyn Rankin, Mercer University, Macon, Georgia

UTHSCSA Staff
- Virginia Bowden
- Pat Hawthorne, Administrative Projects Librarian
- Megan Kromer, Ph.D., Evaluation specialist
- Janna Lawrence, Online/Instructional Services Librarian
- Rajia Tobia, Associate Library Director for Public Services

NLM Staff
- Karen Wallingford

NATIONAL NETWORK OF LIBRARIES OF MEDICINE, SOUTH CENTRAL REGION
- Nancy Bierschenk, Houston Academy of Medicine-Texas Medical Center

AGENDA TOPICS

- Review of project
- Results of baseline survey
- Results of flat-rate MEDLINE password access project
- Results of focus groups
- Usage statistics from CLHIN
- Project Conclusions
- Recommendations

CONSULTANTS' REPORT

A five page report was written by Spencer Marsh on behalf of the consultants. The report, dated August 29, 1991 critiqued the preliminary report and suggested areas that could be enhanced.

The report also included three recommendations:

1. The evaluation components of future research projects should be built into the project design before implementation to avoid having to extrapolate results in an ex post facto mode. NLM should be encouraged to allow sufficient time for project design before implementation so that the evaluation

component can be more robust and findings generalizable, or, at least, comparable to similar research. Experts at NLM could, over time, improve the general quality of applied library research by providing more guidance in research design, implementation, and evaluation. Applied library research is usually conducted by staff members who retain responsibility for maintaining regular library services. Realistic project deadlines need to reflect this reality.

2. When undertaking a project of great magnitude and duration, it would be best to have cheerful commitment to increased workloads, responsibilities and vexations. One wants to avoid commenting in print on the rigors of winter in Siberia.

3. If a section on recommendations for further study is added it might include the topics of service effectiveness. Users tend to be satisfied with services such as the interventions examined in this project. What is less known, and as important, is the degree to which the user gets what is wanted, what is needed, and the extent to which the delivered information is used toward specific results.

APPENDIX B

BASELINE SURVEY OF PHYSICIANS IN BEXAR COUNTY AND SOUTH TEXAS (CAMERON, HIDALGO, STARR AND WILLACY COUNTIES)

1. Cover letter to South Texas physicians, June 14, 1990
2. Cover letter to Bexar County physicians, June 14, 1990
3. Cover letter to all physicians who had not responded, asking for return by August 10.
4. Cover letter to all physicians who had not responded, asking for return by October 15.
5. Survey form for South Texas physicians.
6. Tabulation and comments from South Texas physicians.
7. Survey form for Bexar County physicians.
8. Tabulation and comments from Bexar County physicians.

The University of Texas
Health Science Center at San Antonio
7703 Floyd Curl Drive
San Antonio, Texas 78284-7940

Briscoe Library
(512) 567-2400

June 14, 1990

Name
Address
City, State Zip

Dear Dr.

The Briscoe Library and the South Texas Health Research Center, both of which are part of the University of Texas Health Science Center at San Antonio, are presently sponsoring the Circuit Library Health Information Network (CLHIN) at several participating hospitals in the Lower Rio Grande Valley. This pilot study is partially financed by the National Library of Medicine. Through the program, a librarian provides current medical information in response to requests from attending physicians and hospital personnel. In order to measure the impact of this service and to understand the information needs of physicians in the Lower Rio Grande Valley, we need your help.

We have enclosed a questionnaire which we hope you will be willing to complete for us. It will take about **five** minutes of your time. The code number on the questionnaire will only be used to facilitate our follow-up procedures and to prevent your receiving bothersome reminder letters. Your answers will not be maintained with any personally identifying information and will be available only to the researchers in the study. Study results will be presented in the aggregate.

The results of this study will be used to help the Briscoe Library, the South Texas Health Research Center, and the National Library of Medicine to provide better medical information servies. The results will also influence the educational support programs of the newly funded Area Health Education Center (AHEC) in the Lower Rio Grande Valley/South Texas.

We need responses from persons like yourself in order to provide timely, quality information services. Since situations may differ greatly, and since we wish the results of the study to be as accurate as possible, we cannot overemphasize the importance of receiving your completed questionnaire. If you have any questions about the survey, please call us at 512-567-2400. We appreciate your time and cooperation and look forward to your response.

Sincerely yours,

Virginia M. Bowden, M.S.L.S.
Library Director

Ciro V. Sumaya, M.D.
Associate Dean for Continuing Education
Director, South Texas Health Research Center

The University of Texas
Health Science Center at San Antonio
7703 Floyd Curl Drive
San Antonio, Texas 78284-7940

Briscoe Library
(512) 567-2400

The Briscoe Library of the University of Texas Health Science Center at San Antonio is a major educational resource which provides check-out privileges, free of charge, to all physicians in Bexar County. Through the South Texas Health Research Center, the Briscoe Library is also providing medical information services to several participating hospitals in the Lower Rio Grande Valley. In order to measure the impact of library service and to understand the information needs of physicians in Bexar County in contrast to those in South Texas, we need your help.

You have been selected at random from the physicians in practice in Bexar County. Your responses to the enclosed questionnaire will help us to provide timely, quality information services. The questionnnaire will take about **five** minutes of your time to complete. The code number on the questionnaire will only be used to facilitate our follow-up procedures and to prevent your receiving bothersome reminder letters. Your answers will not be maintained with any personally identifying information and will be available only to the researchers in the study. Study results will be presented in the aggregate.

The results of this study will be used to help the Briscoe Library, the South Texas Health Research Center, and the National Library of Medicine to provide better medical information services. The results will also influence the educational support programs of the newly funded Area Health Education Center (AHEC) in the Lower Rio Grande Valley/South Texas.

We must get a high response in order to be able to generalize the results to the entire physician population in Bexar County. Since situations may differ greatly, and since we wish the results of the study to be as accurate as possible, we cannot overemphasize the importance of receiving your completed questionnaire. If you have any questions about the survey, please call us at 567-2400. We appreciate your time and cooperation and look forward to your response.

Sincerely yours,

Virginia M Bowden
Virginia M. Bowden, M.S.L.S.
Library Director

Ciro V Sumaya
Ciro V. Sumaya, M.D.
Associate Dean for Continuing Education
Director, South Texas Health Research Center

The University of Texas
Health Science Center at San Antonio
7703 Floyd Curl Drive
San Antonio, Texas 78284-7940

Briscoe Library
(512) 567-2400

We are conducting a survey in cooperation with the South Texas Health Research Center to improve our understanding of the information needs of physicians and to measure the impact of library services. We need your help. The results of this study will be used to help the Briscoe Library, the South Texas Health Research Center, and the National Library of Medicine to provide better medical information services. The results will also influence the educational support programs of the newly funded Area Health Education Center (AHEC) in the Lower Rio Grande Valley of Texas.

We have enclosed a second copy of the questionnaire that we first mailed to you in June. Although we have received a number of responses from other physicians, we have not yet received yours. Since situations may differ greatly, and since we wish the results of the study to be as accurate as possible, **it is extremely important that we receive your completed questionnaire.** It will take only about **five** minutes of your time.

The code number on the questionnaire will be used only to facilitate our follow-up techniques and to prevent your receiving bothersome reminder letters after you have returned your response. Your answers will be available only to the researchers in the study. Study results will be presented in the aggregate, and they will contain no personally identifying information.

We would like to receive your response by **August 10** if at all possible. If you have any questions about the survey, please call us at 512-567-2400. We very much appreciate your time and cooperation.

Sincerely yours,

Virginia M Bowden

Virginia M. Bowden, M.S.L.S.
Library Director

encl.

The University of Texas
Health Science Center at San Antonio
7703 Floyd Curl Drive
San Antonio, Texas 78284-7940

Briscoe Library
(512) 567-2400

Dear

What information do you need to help you provide quality health care? How can we improve your success rate in getting **the information you need, when you need it?**

One step in this effort is to find out what information you need, what you find useful, and if you are using the services currently available to you. The Briscoe Library and the South Texas Health Research Center of The University of Texas Health Science Center at San Antonio are conducting a brief survey to help answer some of these questions. **We need your response and we hope that you will return the enclosed questionnaire as soon as possible.**

To encourage you to respond to this questionnaire **on or before October 15**, your response will be your entry in a drawing on October 16 for the following prizes:

1) **Grateful Med software** (IBM-compatible) designed by the National Library of Medicine for physicians.
2) A **tutorial session** in literature searching using Grateful Med.
3) A **password** for searching the National Library of Medicine databases at no charge through April 30, 1991.

Don't miss this opportunity! Your response will influence the future of health care information. Please call us at (512) 567-2400 if you have any questions or if you would like additional information.

Sincerely,

Virginia M Bowden

Virginia M. Bowden, M.S.L.S.
Library Director

P.S. Your answers will not be maintained with any personally identifying information and will be available only to the researchers in the study. Study results will be presented in the aggregate to the National Library of Medicine and will influence the development of medical information services.

PHYSICIAN INFORMATION NEEDS ASSESSMENT
SOUTH TEXAS

The University of Texas Health Science Center at San Antonio's Briscoe Library and South Texas Health Research Center are conducting a survey of the information needs of physicians in South Texas. We would appreciate your taking about ***five minutes*** *to complete this survey. If you have any questions, please call us at (512)567-2400.*

Thank you for your time and thoughtful responses.

For each item, either fill in the blank or check the most accurate response.

INFORMATION RESOURCES

1. For each information resource listed below, indicate by checking the appropriate column how frequently you use them. *If a resource is* ***not available*** *to you, then check the N/A column.*

	Daily	Weekly	Monthly	Rarely	Never	N/A
a. MEDLINE, miniMEDLINE, or other databases						
1. by myself or through my staff..........	☐	☐	☐	☐	☐	☐
2. through a librarian.......................	☐	☐	☐	☐	☐	☐
b. consultation with colleagues................	☐	☐	☐	☐	☐	☐
c. personal/office collection of books/journals................................	☐	☐	☐	☐	☐	☐
d. circuit or visiting librarian..................	☐	☐	☐	☐	☐	☐
e. hospital library................................	☐	☐	☐	☐	☐	☐
f. medical school library........................	☐	☐	☐	☐	☐	☐
g. Texas Medical Association library..........	☐	☐	☐	☐	☐	☐
h. CME programs...............................	☐	☐	☐	☐	☐	☐
i. other, specify ____________________	☐	☐	☐	☐	☐	☐

2. Prior to January 1990, how did you obtain articles that were not available in your own collection? Check ***all*** that apply.
   - ☐ a. from a library (myself or staff)
   - ☐ b. from a hospital staff member (medical records, education office, etc.)
   - ☐ c. by mail from a library
   - ☐ d. by FAX from a library
   - ☐ e. reprints from authors
   - ☐ f. reprints from a commercial service
   - ☐ g. do not obtain
   - ☐ h. other, please specify: ____________________________________

3. How many articles do you obtain from the above sources in a typical 6-month period?_________

IF YOU USE MEDLINE OR OTHER DATABASES: **(if not, skip to question 10)**

4. Approximately how many **MEDLINE** searches, other than miniMEDLINE, do you or your staff request **from a librarian** in a typical 6 month period? ________________________

5. Approximately how many **MEDLINE** searches, other than miniMEDLINE, do you or your staff do **by yourselves** in a typical 6 month period? ________________________

6. Why do you use MEDLINE? (check ***all*** that apply)
   - ☐ a. for patient care - please specify:
     - ☐ 1. diagnostic criteria or differential diagnosis
     - ☐ 2. physical signs and symptom interpretation
     - ☐ 3. treatment recommendations and modalities
     - ☐ 4. lab test selection and interpretation
     - ☐ 5. for drug information
     - ☐ 6. to locate specialists for referral
     - ☐ 7. to provide information for patient/family
   - ☐ b. to confirm an opinion
   - ☐ c. to prepare a lecture or paper
   - ☐ d. to learn about a new field
   - ☐ e. to stay current
   - ☐ f. for basic research
   - ☐ g. for legal or regulatory questions
   - ☐ h. other, specify: ________________________

7. If you use databases other than MEDLINE, please indicate ***all*** that you use.
   - ☐ a. Micromedex (Poisindex, Drugdex, etc.)
   - ☐ b. BIOETHICSLINE
   - ☐ c. TOXLINE OR TOXNET
   - ☐ d. CANCERLINE
   - ☐ e. AIDSLINE
   - ☐ f. PDQ
   - ☐ g. Current Contents
   - ☐ h. other, specify: ________________

Please go on to question 8 if appropriate

IF YOU DO YOUR OWN MEDLINE SEARCHES: **(if not, skip to question 11)**

8. What systems do you use to access MEDLINE? Check ***all*** that apply.
   - ☐ a. Grateful Med
   - ☐ b. NLM without Grateful Med
   - ☐ c. BRS/Colleague
   - ☐ d. MEDLINE on CD-ROM
   - ☐ e. MiniMEDLINE from UTHSCSA
   - ☐ f. other, specify: ________________
   - ☐ g. don't know.

9. How did you learn to search MEDLINE? Check *all* that apply.
   - ☐ a. training workshop
   - ☐ b. computer tutorial
   - ☐ c. trial and error
   - ☐ d. friend/colleagues
   - ☐ e. elective or required course in medical school
   - ☐ f. other, specify: ________________

Skip to question 12

IF YOU DO NOT CURRENTLY USE MEDLINE

10. What are the major reasons for your **not** requesting MEDLINE searches **from a librarian**? Check ***all*** that apply.
    - ☐ a. not needed
    - ☐ b. no local access
    - ☐ c. inconvenient location
    - ☐ d. inconvenient hours
    - ☐ e. have to wait to get search done
    - ☐ f. unsatisfactory results in the past
    - ☐ g. cost
    - ☐ h. never heard of it
    - ☐ i. other, specify: ______________________________

11. What are the major reasons for your **not** doing MEDLINE searches **by yourself**? Check ***all*** that apply.
    - ☐ a. not needed
    - ☐ b. don't know how
    - ☐ c. not enough time
    - ☐ d. lack of equipment
    - ☐ e. cost
    - ☐ f. never heard of it
    - ☐ g. other, specify: ___________________

Please go on to question 12

TECHNOLOGY

12. Is a microcomputer available to: Check ***all*** that apply:
    - ☐ a. you, at office or lab
    - ☐ b. you, at home
    - ☐ c. you, at library
    - ☐ d. your staff, at office
    - ☐ e. your staff, at library

13. Do you have a modem at home?
    ☐ a. yes ☐ b. no ☐ c. don't know

14. Do you have a modem at the office or lab?
    ☐ a. yes ☐ b. no ☐ c. don't know

15. Do you have access to a FAX machine?
    ☐ a. yes ☐ b. no ☐ c. don't know

16. How experienced are you as a user of computer databases? Check ***only one answer.***
    - ☐ a. not at all experienced
    - ☐ b. not very experienced
    - ☐ c. somewhat experienced
    - ☐ d. very experienced

PROFESSIONAL PRACTICE INFORMATION

17. What is your **primary** work place? Check ***only one*** answer.
    - ☐ a. private practice
    - ☐ b. academic health science center
    - ☐ c. hospital or clinic
    - ☐ d. other, specify: ____

18. What is your **primary** professional activity? Check ***only one*** answer.
    - ☐ a. patient care
    - ☐ b. research
    - ☐ c. teaching
    - ☐ d. training (e.g. residency, fellowship)
    - ☐ e. other, specify: ____

19. Indicate the percent of your patient population which is described by *each* of the following:

	None	1-24%	25-49%	50-74%	75-100%
a. Mexican-American..........	☐	☐	☐	☐	☐
b. rural	☐	☐	☐	☐	☐
c. migrant workers.............	☐	☐	☐	☐	☐
d. over 60 years of age........	☐	☐	☐	☐	☐

20. Are you a member of any of the following **state** professional associations? Check ***all*** that apply:
☐ a. Texas Medical Association
☐ b. state specialty association
☐ c. county medical association
☐ d. other, specify: ______________

21. What are the major shortcomings in the information sources or services available to you?

22. Please add any other comments you would like to make.

Thank you for your help.

Please return in the enclosed stamped envelope by July 9, 1990 to:

Virginia M. Bowden, M.S.L.S.
Library Director
Briscoe Library - UTHSCSA
7703 Floyd Curl Drive
San Antonio, TX 78284-7940

The University of Texas Health Science of Texas Health Science Center at San Antonio 6/11/90

FINAL RESULTS OF BASELINE SURVEY - SOUTH TEXAS PHYSICIANS
(280 QUESTIONNAIRES RETURNED)

QUESTION 1: USE OF INFORMATION RESOURCES

QUESTION	DAILY	WEEKLY	MONTHLY	RARELY	NEVER	N/A	MISSING
DB/SELF	2 (1%)	10 (4%)	19 (7%)	51 (18%)	66 (24%)	99 (35%)	33 (12%)
DB/LIB	1 (0%)	12 (4%)	26 (9%)	64 (23%)	52 (19%)	66 (24%)	59 (21%)
CONSULT	106 (38%)	82 (29%)	25 (9%)	27 (10%)	13 (5%)	9 (3%)	18 (6%)
PERSONAL	131 (47%)	90 (32%)	19 (7%)	5 (2%)	12 (4%)	12 (4%)	11 (4%)
CIR LIB	1 (0%)	10 (4%)	17 (6%)	43 (15%)	88 (31%)	99 (35%)	22 (8%)
HOSP LIB	2 (1%)	15 (5%)	32 (11%)	97 (35%)	64 (23%)	50 (18%)	20 (7%)
MS LIB	1 (0%)	2 (1%)	6 (2%)	56 (20%)	71 (25%)	121 (43%)	23 (8%)
TMA LIB	0 (0%)	3 (1%)	21 (8%)	98 (35%)	81 (29%)	61 (22%)	16 (6%)
CME PROG	2 (1%)	35 (13%)	136 (49%)	62 (22%)	14 (5%)	11 (4%)	20 (7%)
OTHER	1 (0%)	2 (1%)	4 (1%)	6 (2%)	14 (5%)	34 (12%)	219 (78%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 1: 2 (0.71%)

QUESTION 2: HOW ARTICLES ARE OBTAINED

QUESTION	NUMBER CHECKED
FROM LIBRARY	96 (34%)
FROM HOSPITAL STAFF	70 (25%)
BY MAIL FROM LIBRARY	101 (36%)
BY FAX FROM LIBRARY	19 (7%)
AUTHOR REPRINTS	50 (18%)
COMMERICAL REPRINTS	26 (9%)
DO NOT OBTAIN	63 (23%)
OTHER	27 (10%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 2: 5 (1.79%)

QUESTION 3: ARTICLES OBTAINED DURING A 6 MONTH PERIOD

NO. OF ARTICLES	NO. OF RESPONDENTS
-1 (MISSING)	46 (16%)
0	25 (9%)
1	13 (5%)
2	31 (11%)
3	21 (8%)
4	11 (4%)
5	9 (3%)
6	30 (11%)
7	1 (0%)
8	9 (3%)
10	30 (11%)
12	12 (4%)
15	11 (4%)
18	1 (0%)
20	9 (3%)

25	1 (0%)
26	1 (0%)
30	6 (2%)
40	3 (1%)
50	4 (1%)
75	1 (0%)
100	2 (1%)
120	1 (0%)
250	1 (0%)
9999 (RESPONSE NOT NUMERIC)	1 (0%)

QUESTION 4: LIBRARIAN MEDIATED MEDLINES

NO. OF MEDLINES	NO. OF RESPONDENTS
-1 (MISSING)	111 (40%)
0	85 (30%)
1	12 (4%)
2	23 (8%)
3	11 (4%)
4	10 (4%)
5	2 (1%)
6	8 (3%)
8	1 (0%)
10	10 (4%)
15	1 (0%)
17	1 (0%)
20	2 (1%)
25	1 (0%)
40	1 (0%)
9999 (RESPONSE NOT NUMERIC)	1 (0%)

QUESTION 5: MEDLINES DONE BY RESPONDENT

NO. OF MEDLINES	NO. OF RESPONDENTS
-1 (MISSING)	125 (45%)
0	108 (39%)
1	4 (1%)
2	16 (6%)
3	5 (2%)
4	1 (0%)
5	6 (2%)
6	3 (1%)
10	3 (1%)
12	2 (1%)
15	1 (0%)
20	4 (1%)
25	1 (0%)
65	1 (0%)

QUESTION 6: WHY DO YOU USE MEDLINE?

QUESTION	NUMBER CHECKED
FOR PATIENT CARE	78 (28%)
DIAGNOSTIC CRITERIA	70 (25%)
PHYSICAL SIGNS INTERPRETATION	31 (11%)
TREATMENT RECOMMENDATION	76 (27%)
LAB TEST SELECTION/INTERP	30 (11%)
DRUG INFORMATION	40 (14%)
LOCATE SPECIALISTS	6 (2%)
PATIENT INFORMATION	24 (9%)
CONFIRM OPINION	51 (18%)
PREPARE LECTURE/PAPER	64 (23%)
LEARN NEW FIELD	40 (14%)
STAY CURRENT	68 (24%)
BASIC RESEARCH	21 (8%)
LEGAL/REGULATORY QUESTIONS	35 (13%)
OTHER	11 (4%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 6: 163 (58.21%)

QUESTION 7: DATABASES USED OTHER THAN MEDLINE

QUESTION	NUMBER CHECKED
MICROMEDEX	(2%)
BIOETHICSLINE	0 (0%)
TOXLINE/TOXNET	3 (1%)
CANCERLINE	8 (3%)
AIDSLINE	1 (0%)
PDQ	8 (3%)
CURRENT CONTENTS	3 (1%)
OTHER	15 (5%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 7: 242 (86.43%)

QUESTION 8: SYSTEMS USED TO ACCESS MEDLINE

QUESTION	NUMBER CHECKED
GRATEFUL MED	19 (7%)
NLM W/O GRATEFUL MED	1 (0%)
BRS/COLLEAGUE	5 (2%)
MEDLINE ON CD-ROM	3 (1%)
UTHSCSA miniMEDLINE	4 (1%)
OTHER	7 (3%)
DON'T KNOW	10 (4%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 8: 235 (83.93%)

QUESTION 9: HOW MEDLINE LEARNED

QUESTION	NUMBER CHECKED
TRAINING WORKSHOP	4 (1%)
COMPUTER TUTORIAL	4 (1%)
TRAIL AND ERROR	22 (8%)
FRIEND/COLLEAGUES	20 (7%)
MEDICAL SCHOOL ELECTIVE/COURSE	2 (1%)
OTHER	9 (3%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 9: 236 (84.29%)

QUESTION 10: REASONS MEDLINE NOT REQUESTED FROM A LIBRARIAN

QUESTION	NUMBER CHECKED
NOT NEEDED	33 (12%)
NO LOCAL ACCESS	56 (20%)
INCONVENIENT LOCATION	21 (8%)
INCONVENIENT HOURS	14 (5%)
HAVE TO WAIT TO GET SEARCH DONE	13 (5%)
UNSATISFACTORY RESULTS IN PAST	5 (2%)
COST	11 (4%)
NEVER HEARD OF IT	46 (16%)
OTHER	18 (6%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 10: 112 (40.00%)

QUESTION 11: REASONS FOR NOT DOING MEDLINE SEARCHES YOURSELF

QUESTION	NUMBER CHECKED
NOT NEEDED	27 (10%)
DON'T KNOW HOW	78 (28%)
NOT ENOUGH TIME	40 (14%)
LACK OF EQUIPMENT	60 (21%)
COST	17 (6%)
NEVER HEARD OF IT	44 (16%)
OTHER	14 (5%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 11: 82 (29.29%)

QUESTION 12: AVAILABILITY OF MICROCOMPUTER

QUESTION	NUMBER CHECKED
YOU, AT OFFICE OR LAB	127 (45%)
YOU, AT HOME	90 (32%)
YOU, AT LIBRARY	26 (9%)
YOUR STAFF, AT OFFICE	85 (30%)
YOUR STAFF, AT LIBRARY	12 (4%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 12: 85 (30.36%)

QUESTION 13: MODEM AT HOME

RESPONSE	NO. OF RESPONDENTS
-1 (MISSING)	3 (1%)
0 (NO)	202 (72%)
1 (YES)	62 (22%)
9 (DON'T KNOW)	13 (5%)

QUESTION 14: MODEM AT OFFICE OR LAB

RESPONSE	NO. OF RESPONDENTS
-1 (MISSING)	5 (2%)
0 (NO)	130 (46%)
1 (YES)	118 (42%)
9 (DON'T KNOW)	27 (10%)

QUESTION 15: ACCESS TO FAX MACHINE

RESPONSE	NO. OF RESPONDENTS
-1 (MISSING)	2 (1%)
0 (NO)	115 (41%)
1 (YES)	149 (53%)
9 (DON'T KNOW)	14 (5%)

QUESTION 16: EXPERIENCE AS USER OF COMPUTER DATABASES

RESPONSE	NO. OF RESPONDENTS
-1 (NO ANSWER)	13 (5%)
1 (NOT AT ALL)	161 (58%)
2 (NOT VERY)	59 (21%)
3 (SOMEWHAT)	43 (15%)
4 (VERY)	4 (1%)

QUESTION 17: PRIMARY WORK PLACE

QUESTION	NUMBER CHECKED
PRIVATE PRACTICE	202 (72%)
ACADEMIC HEALTH SCIENCE CENTER	1 (0%)
HOSPITAL OR CLINIC	61 (22%)
OTHER	13 (5%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 17: 10 (3.57%)

QUESTION 18: PRIMARY PROFESSIONAL ACTIVITY

QUESTION	NUMBER CHECKED
PATIENT CARE	266 (95%)
RESEARCH	1 (0%)
TEACHING	4 (1%)
TRAINING (RESIDENCY,FELLOWSHIP)	1 (0%)
OTHER	9 (3%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 18: 6 (2.14%)

QUESTION 19: % POPULATION

QUESTION	NONE	1-24%	25-49%	50-74%	75-100%	MISSING
MEXICAN-AMER	2 (1%)	11 (4%)	22 (8%)	136 (49%)	102 (36%)	7 (3%)
RURAL	5 (2%)	64 (23%)	82 (29%)	48 (17%)	36 (13%)	45 (16%)
MIGRANT WORK	13 (5%)	180 (64%)	0 (0%)	42 (15%)	2 (1%)	43 (15%)
OVER 60	15 (5%)	49 (18%)	74 (26%)	93 (33%)	24 (9%)	25 (9%)

QUESTION 20: MEMBERSHIPS

QUESTION	NUMBER CHECKED
TEXAS MEDICAL ASSOCIATION	238 (85%)
STATE SPECIALTY ASSOCIATION	156 (56%)
COUNTY MEDICAL ASSOCIATION	225 (80%)
OTHER	62 (22%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 20: 22 (7.86%)

QUESTION 21: USE OF MEDICAL LIBRARIES IN BEXAR COUNTY

QUESTION NOT ASKED TO THIS GROUP

QUESTION 22: MAJOR SHORTCOMINGS IN INFORMATION SOURCES AND SERVICES

121 COMMENTS RECEIVED (43%OF QUESTIONNAIRES)

QUESTION 23: ADDITIONAL COMMENTS

46 COMMENTS RECEIVED (16% OF QUESTIONNAIRES)

SOUTH TEXAS PHYSICIANS RESPONSES Total respondents: 273
Surveys of July, August, October

1. For each information resource listed below, indicate how frequently you use them.
   i. other, specify:
      - consultation services - 302340
      - CME 4 times a year - 53426
      - audiotapes from American College of Cardiology - 311365
      - audiotapes - 100598
      - seminars, meetings - 65685, 41273
      - Hospital committees and subject conferences - 39676

2. How do you obtain articles that are not available in your own collection?
   h. Other: specify -
      - from friends at medical universities - 305476, 302313, 312064
      - journals - 302148
      - purchase books - 200455
      - consultants who had access to recent articles - 57914
      - consultation with colleagues in other specialties - 38753
      - American Academy of Family Physicians - 306313
      - Dept. of Neurosurgery - UTHSCSA - 301640
      - pharmaceutical companies - 100598
      - AMANET in CompuServe - 51466
      - MD friends in town and journals I needed - 56464
      - PDQ - 63276
      - specialty physician - 302643
      - TMA library - 202022, 37837
      - flew to Houston to use Library - 41273
      - Through circuit librarian from ST Health Research Center - 68775
      - TMA - 42880, 53709
      - Fact Line of doctors - 101702

6. Why do you use Medline?
   h. Other, specify:
      - never use Medline - 52440
      - CME - 44298

7. If you use databases other than Medline, please indicate all that you use.
   h. Other, specify:
      - Toma Med Search - 54745
      - Audio Digest to California: journals, lifeline to Houston (free) - 51905
      - UTMB Consultant source - 50131
      - Grateful Med 62279
      - AMANET, CompuServe - 51466
      - I am still learning - 40627
      - TMA Library - 39578
      - DERM-INFONET/Colleague - 315773

8. What systems do you use to access MEDLINE?
   f. Other, specify:

- UTMB source line - 50131
- Compu Serve - 49334
- drug company - 61212
- TMA library 39578, 58210
- AMA - 311499
- scared to use it 63506
- Through circuit librarian from ST Health Research Center - 68775
- TMA - 42880, 53709
- Fact Line of doctors - 101702, 48392

9. How did you learn to search MEDLINE?

f. Other, specify -

- not available to me - 57914
- Cardiology fellowship
- I have not learned how to use it right. I have a great deal of difficulty; that is why I do not use it as much - 201750
- my staff does it; I know nothing -47204
- Manual - 63276
- TMA Library - 58210
- don't know hoe - 63506
- Mrs. Dwyer's private session - 51436
- no local access until very recently - 313735

10. What are the major reasons for your not requesting MEDLINE searches from a librarian?

i. specify:

- use Toma Med Search - 54745
- untrained - 200455
- only recently available - 38506
- I am used to look in books and journals - 42877
- have received no information - 54639
- don't know how to use - 312438, 304129, 45739
- applied for - 38507
- lazy - 302622
- usually when I need reference, I need it right now - 33336
- local access erratic - 49595
- never received specific information on it - 53709
- too busy - 52896

11. What are the major reasons for your not doing Medline searches by yourself?

g. specify:

- not appropriate for my practice - 300127
- don't know how to use - 45739
- I have a good library - 56690
- plan to use - 39445
- easier with librarian - 51436
- no local access until very recently - 313735
- not available - 37837
- Just started using computer - 49595
- too busy - 52896

17. What is your primary work place?
    d. Other, specify:
        - Migaant clinic - 314087
        - emergency medicine - 54639, 48225
        - Military - 37210
        - VA - 65241
        - community health center - 313735
        - out patient surgery - 62906
        - Medico-legal - 42131
        - Health department - 49161

18. What is your primary professional activity?
    e. Other, specify:
        - read x-rays - 64835
        - radiology, private practice in hospital - 48738
        - consulting physician - 44298
        - anesthesiology - 62906
        - ORS - 50837
        - Administration - 49161
        - Pathology - 312212

20. Are you a member of any of the following state professional associations?
    d. other, specify:
    - AMA - 39919
    - ACR - 48738
    - American Society of Anesthesiologist - 53426
    - AMA, AAP - 38033
    - American Thoracic Society - 42877
    - AMA, American College Ob/Gyn - 38753
    - ACP, ACG, 47246
    - County chapter of American Heart Association - 311365
    - ACS, ACC, ACCP, SSA, STSA - 62531
    - American College of Cardiology - 302177
    - ACOG, AMA 68783
    - American Academy of Family Practice - 41614
    - AMA, American Academy of Ophthalmology - 56464
    - AMIM, AMA 57392
    - AAFP, AMA 50753
    - TAFP - 101478
    - ACP, AMA 311835
    - ACEP - 66087
    - ACR-ASTRO-RSNA - 57550
    - AAFP - 305956
    - national specialty - 58336
    - Texas Society of Internal Medicine - 40904
    - AMA, AAFP - 35456
    - AAFP, TAFP - 38127
    - TAFP - 47762
    - TOMA - 38126
    - American Academy of Orthopedic Surgons; American College of Surgeons Western Orthopaedic - 38972
    - AMA 38182
    - AAOS - 46059

Library have to look for requested reference elsewhere, it sometimes gets expensive to request many references not readily available - 38750

- long waiting period to obtain the reprints - 302177
- poor library facilities in Rio Grande Valley. No hook up with UTHSCSA or National Library of Medicine - 305262
- I do not know how to obtain a reprint of the abstracts that I would like, that I learn about from Grateful Med. There is a fax machine in our hospital administration but not for our individual use. Should we buy one? I would like to have a toll free number which I could call to obtain rapid reprints that I need.

  Also, Grateful Med is nice, but frequently time consuming, and inadequate since there was no tutorial for the Macintosh version, and I had to learn to use the search the hard way. Also, there is frequent line noise on the toll free phone line to NLM and that tells my computer to stop the search, and I have to begin searching over again. - 300033
- Lack of education; someone needs to provide hands on in service for physicians. I believe this is crucial. -201750
- Lack of speed in getting good quality copies of needed articles - 56043
- One source outside of hospitals, i.e. only at UT Pan American, Edinburg, Learning Resource Center. It needs strengthening and support. Needs to be broadened. The Univ. does not support it adequately.-44298
- Unavailability of librarian to help "spoon feed" our academic needs. Our present hospital libraries are woefully inadequate in substance and quantity - 55288
- I have to rely on a librarian to be responsible for complete literature searches - 68783
- Would prefer librarian-assisted search and retrieval available locally - 51466
- Cannot obtain printed articles through Grateful Med - 201025
- Just need to take the time to learn how to utilize a good system - need help 56464
- Provided by hospital with a visiting librarian. Availability is infrequent - 309566
- poor access - 314087
- Rapidity and scope - 46206
- I am not aware that these services are yet available in the Harlingen area - they sound attractive. The hospital library is as good as nothing - 309521
- Lack of information of the facilities available - 50753
- I do not know how to use them - 68040
- not easily available - 67983, 62780, 302891, 306761, 39445
- reprints of articles are too expensive; pictures are poor quality - 53613
- difficulty in access - 66087, 101082
- For those rare times when I need an article in a journal that I do not receive, I would use TMA - 56209
- no hospital library - 46646
- have to use personnel from local hospitals; do not have facilities at home - 57550
- Being in rural practice, information sources/services are all remote and difficult to access. Our local hospital has no library or easy means of providing searches for us. Our time is also quite limited. CME events have to be scheduled well in advance to incorporate the absence from the office - 62058
- Available only few hours per week at our hospital. Difficult to locate elsewhere - 305956

- National Oncology Groups - 62646
- AHP - 309639
- Urological Society of San Antonio - 57890
- County Sp. Ass. - 54879
- Texas state bar - 42131
- AAOS, ACS 50837
- AAFP - 49595
- ACOG, FACOG - 39646
- American Board of Orthopedic Surgeons - 53709
- FACOG - 48392
- AAP, AMA - 307973
- National Specialty Association - 101702

22. What are the major shortcomings in the information sources or services available to you?
    - can't act through to main frame - 66322
    - do not initiate enough searches -311918
    - really don't need much; no real shortcomings - 64835
    - have never felt shortcomings, although time is critical - 38137
    - delay; lack of availability of many journals locally - 309323
    - none - 312243, 54745, 38753, 300127, 62279, 36050, 61212
    - need Medline capability -306358
    - lack of information about resources available - 39919
    - lack of availability - 305476, 68350, 101478
    - cost - 305476, 312051
    - somewhat tedious - 37916
    - not readily accessible - 310216, 60543
    - not easily available. Besides I have a large personal library which covers my specialty completely (and closely associated specialties). I subscribe to and read more than 10 journals/month, plus 3 specialty clinics, homestudy courses by Academy, etc. 302340
    - limited amount of info in my specialty - 61702
    - none locally available in Rio Grande Valley - 200455
    - they don't exist - 57914
    - information is needed ipso facto 48494
    - time, waiting for information; access to librarian to request information - 48070
    - lack of library close to us. However circuit library is a huge improvement - 308629
    - my inexperience in utilizing PC at my office - 38033
    - small library with no full time librarian - 42877
    - local - isolation - 47256
    - no time to access frequently enough - 311245
    - In Harlingen, we just do not have local access to medical articles via computer - 47246
    - I am pleased with BRS Colleague - 311365
    - lack of time - 49334, 42714, 38730, 37210, 300773, 54814, 38127, 304626
    - expensive - 49334, 300609
    - available only once a week - 62531
    - by the time I get my answer back, the point has been resolved - 55989
    - location- 68471, 100619
    - delays in obtaining reprints or photocopies. When TMA or Medical School

- inconvenient - 58336, 54199
- difficult access; much improved with Circuit librarian - 308009
- no medical library in the valley - 310019
- limited information; time consuming - 45739
- journals quoted never available; lousy medical staff library; takes too long to get things from State Library; patient dead before data available - 200035
- TMA library is excellent and quite adequate along with our local health library - 39578
- programs to connect with databases not at all friendly; costly - 315773
- don't seem easy to get - 302622
- Have had MEdline only for the past 6 months - 34479
- Usually not current; not comprehensive enough - 67831
- Just started working last April 1990 at Harlingen - 47762
- lack of good local library - 312064
- frequent mail requests to TMA library misunderstood and I get a lot of stuff I cannot use - 42363
- no medical library except my own and a few books in hospital department - 33336
- not much is locally available - 201699
- User knowledge and being unfamiliar of its availability. It has only recently become available in my area and I have not learned to do my work without it using my own library in the past. I need training. - 100695
- not as complete as I would like - 315703
- I believe I would us a medical library more if one were located close to me - 38038
- TMA library very helpful - no problem. 58210
- librarian works twice a week in McAllen - 61585
- medical magazines, textbooks - 56422
- cost per phone call on modem; lack of expertise; if someone would just come to our clinic and set up 800#; teach our executive secretary to run system; we could access the system frequently - 63506
- unable to use medical library in Houston because not a member of the Harris county Medical Society. TMA library expensive and not able to find the kind of articles needed at times. - 51436
- There is no medical library available. Medline was just purchased/ subscribed by the hospital to which I admit 313735
- need more information - 46059
- they are all out of town, because of the specialty area of interest I have; second, local sources are limited in scope or "hours" do not correspond with a busy practice - 41273
- Subscribe to a Clinical Dermatology service; it's publication has to be several months old at the time of publication.
  Journals come by the ton. There are not even enough hours in the day to even review them - 37837
- I just, not too long ago, began using a hospital system for articles, and papers that I need - 304302
- The services of Tex Med library are excellent and completely sufficient for my education on the subject I requested. - 39676
- This is an isolated area; I have lots of magazines regarding my specialty - 34499
- Availability - 58245
- Hospital based computer search not always available due to personnel

turnover - 49595

- Presently using Ms. Dwyer - find her delightful, enthusiastic, knowledgeable, resourceful and very helpful - 68775
- Not familiar with what they are -49161
- Really none now; hope to have computer in hospital library - 42880
- No major shortcomings but information could be more readily accessible - 53709
- Just not set up in a convenient fashion for me yet - 52896
- do not know how; lack of equipment; time to spend to learn - 48392
- Lack of promotion to know them better - 64622
- Do not know what is available - 307973
- Hard to get - 61090

23. Please add any other comments you would like to make.
    - I am just an old retired radiologist; get most of my needed information from journals - 64835
    - would like to know more about rapid access data - 37916
    - I would like this availability in McAllen - 200455
    - Please notify me of anything in Edinburg, McAllen. I intend to buy a fax machine in the fall. I have gone so far as to call the Mayo clinic to ask for advice in the past when my colleagues couldn't help - 57914
    - I would like to have access to medical information which could facilitate decision-making. Willing to "computerize" my home/office - 48494
    - as mentioned, I have requested Medline but not reply from you - 38506
    - Send me the number of Medline -306313. Dr. Javier Murjud, 1109 Pamela Drive, Mission, TX 78572
    - It would be nice if UTHSC could help VGAC come into the 20th century on this - 47246
    - If Federal grants can make these services less expensive, their use will become common use in the medical practice - 62531
    - good start on your part. Look forward to close working relationship with your staff - 305262
    - Suggest a county course in the Macintosh version of Grateful Med. Suggest a way to get rapid reprints of the original articles at a local level. Suggest that a good line be developed into the NLM mainframe; let's get serious, the 800 toll free number is worth what it cost to use it, i.e., it is worthless - 300033
    - I would like to belong - 36050
    - Your help and assistance are very desperately needed down here. The delay in returning was due to travel and illness. Thank you 44298
    - We need funding to do research on our sick population. We appreciate your help and concern. - 55288
    - I do not have access to computers or modems - 68350
    - Mail periodically a bulletin of the facilities in the Library or the Medical School; CME conference at the UTHSC - 50753
    - My modem is on an Apple II GS - no software available for Grateful Med - 67983
    - not enough time; no understanding of database technology -311835
    - the best thing to do is not to spend the money - 56209
    - Shortage of physicians at the Center; no time; too much paper work - 64045

- Now that Medline is available, we like it! 34479
- Believe MD's in South Texas would be receptive to Medline searches - 67831
- I transferred my practice recently from Pennsylvania and Philippines - 47762
- If we had a library with only a few major journals, it would be a big help - 312064
- I retired in 1987, so I practice the occasional call to my residence. I resisted getting a computer anticipating retirement. You need to remove my name from your list - 38126
- I retired my radiological practice on 1-1-90, but filled out this questionnaire based on last year - 33336
- I receive more information through journals than I am able to digest. My reference library is extensive - 38972
- The availability has not been shown to me. I would like to learn and become familiar with it. 100695
- I would like more information concerning Medline services - 315703
- We are pleased to have Mary Jo Dwyer in the area because she helps us in search data - 61585
- I would like to use Medline for organic and differential diagnosis as well as to stay current - 56422
- another bureaucratic idea which will probably not develop but will minimize to spend a bundle of tax payers' money. - 48225
- Ms. Mary Jo Dwyer has been wonderful and an enormous help. She is readily available, pleasant, capable. Thanks very much for her services 51436
- I am looking forward to using Grateful Med to which our community health center has just subscribed - 313735
- It would be highly beneficial to both physician and patient to have information more readily available. The less "red tape" and "less politicized" the process, the more physicians will use it. Remember, not all physicians go daily nor weekly into a hospital due to their scope of practice. A program teaching about databases and their use would be appreciated as well as some assistance in "linking up" or joining one. 41273
- Probably the computer idea is good to keep up-to-date. However, there is much chaff and little wheat in the literature. Today, what is really necessary is an intermittent monographic journal, available by necessity, rather than by daily mail - 37837
- I have a change in address - 62906
- Computers are too personally time consuming for me to sit down and request print outs on the basis of my limited access and knowledge - 39676
- This deal probably has great potential. I am 70 years old and still slow on computers - 34499
- Would like to have home and office access to searches and skill to do so - 52896
- Is there any database to access through my Macintosh computer? 64622
- This service is of great help when needed. I think with time and learning of its advantages, we will use it more and more. It will be great for defense in medico-legal cases. 101702

PHYSICIAN INFORMATION NEEDS ASSESSMENT
BEXAR COUNTY

The University of Texas Health Science Center at San Antonio's Briscoe Library and South Texas Health Research Center are conducting a survey of the information needs of physicians in Bexar County. We would appreciate your taking about ***five minutes*** *to complete this survey. If you have any questions, please call us at (512)567-2400.*

Thank you for your time and thoughtful responses.

For each item, either fill in the blank or check the most accurate response.

INFORMATION RESOURCES

1. For each information resource listed below, indicate by checking the appropriate column how frequently you use them. *If a resource is* ***not available*** *to you, then check the N/A column.*

	Daily	Weekly	Monthly	Rarely	Never	N/A
a. MEDLINE, miniMEDLINE, or other databases						
1. by myself or through my staff..........	☐	☐	☐	☐	☐	☐
2. through a librarian......................	☐	☐	☐	☐	☐	☐
b. consultation with colleagues................	☐	☐	☐	☐	☐	☐
c. personal/office collection of books/journals................................	☐	☐	☐	☐	☐	☐
d. circuit or visiting librarian..................	☐	☐	☐	☐	☐	☐
e. hospital library................................	☐	☐	☐	☐	☐	☐
f. medical school library........................	☐	☐	☐	☐	☐	☐
g. Texas Medical Association library..........	☐	☐	☐	☐	☐	☐
h. CME programs..................................	☐	☐	☐	☐	☐	☐
i. other, specify ____________________	☐	☐	☐	☐	☐	☐

2. How do you obtain articles that are not available in your own collection? Check ***all*** that apply.
   - ☐ a. from a library (myself or staff)
   - ☐ b. from a hospital staff member (medical records, education office, etc.)
   - ☐ c. by mail from a library
   - ☐ d. by FAX from a library
   - ☐ e. reprints from authors
   - ☐ f. reprints from a commercial service
   - ☐ g. do not obtain
   - ☐ h. other, please specify: ________________________________

3. How many articles do you obtain from the above sources in a typical 6-month period?_________

IF YOU USE MEDLINE OR OTHER DATABASES: **(if not, skip to question 10)**

4. Approximately how many **MEDLINE** searches, other than miniMEDLINE, do you or your staff request **from a librarian** in a typical 6 month period? ____________________

5. Approximately how many **MEDLINE** searches, other than miniMEDLINE, do you or your staff do **by yourselves** in a typical 6 month period? ____________________

6. Why do you use MEDLINE? (check *all* that apply)
   - ☐ a. for patient care - please specify:
     - ☐ 1. diagnostic criteria or differential diagnosis
     - ☐ 2. physical signs and symptom interpretation
     - ☐ 3. treatment recommendations and modalities
     - ☐ 4. lab test selection and interpretation
     - ☐ 5. for drug information
     - ☐ 6. to locate specialists for referral
     - ☐ 7. to provide information for patient/family
   - ☐ b. to confirm an opinion
   - ☐ c. to prepare a lecture or paper
   - ☐ d. to learn about a new field
   - ☐ e. to stay current
   - ☐ f. for basic research
   - ☐ g. for legal or regulatory questions
   - ☐ h. other, specify: ____________________

7. If you use databases other than MEDLINE, please indicate *all* that you use.
   - ☐ a. Micromedex (Poisindex, Drugdex, etc.)
   - ☐ b. BIOETHICSLINE
   - ☐ c. TOXLINE OR TOXNET
   - ☐ d. CANCERLINE
   - ☐ e. AIDSLINE
   - ☐ f. PDQ
   - ☐ g. Current Contents
   - ☐ h. other, specify: ____________________

   Please go on to question 8 if appropriate

IF YOU DO YOUR OWN MEDLINE SEARCHES: **(if not, skip to question 11)**

8. What systems do you use to access MEDLINE? Check *all* that apply.
   - ☐ a. Grateful Med
   - ☐ b. NLM without Grateful Med
   - ☐ c. BRS/Colleague
   - ☐ d. MEDLINE on CD-ROM
   - ☐ e. MiniMEDLINE from UTHSCSA
   - ☐ f. other, specify: ____________________
   - ☐ g. don't know.

9. How did you learn to search MEDLINE? Check *all* that apply.
   - ☐ a. training workshop
   - ☐ b. computer tutorial
   - ☐ c. trial and error
   - ☐ d. friend/colleagues
   - ☐ e. elective or required course in medical school
   - ☐ f. other, specify: ____________________

   Skip to question 12

IF YOU DO NOT CURRENTLY USE MEDLINE

10. What are the major reasons for your **not** requesting MEDLINE searches **from a librarian**? Check ***all*** that apply.
    - ☐ a. not needed
    - ☐ b. no local access
    - ☐ c. inconvenient location
    - ☐ d. inconvenient hours
    - ☐ e. have to wait to get search done
    - ☐ f. unsatisfactory results in the past
    - ☐ g. cost
    - ☐ h. never heard of it
    - ☐ i. other, specify: ______________________________

11. What are the major reasons for your **not** doing MEDLINE searches **by yourself**? Check ***all*** that apply.
    - ☐ a. not needed
    - ☐ b. don't know how
    - ☐ c. not enough time
    - ☐ d. lack of equipment
    - ☐ e. cost
    - ☐ f. never heard of it
    - ☐ g. other, specify: ____________________

    Please go on to question 12

TECHNOLOGY

12. Is a microcomputer available to: Check ***all*** that apply:
    - ☐ a. you, at office or lab
    - ☐ b. you, at home
    - ☐ c. you, at library
    - ☐ d. your staff, at office
    - ☐ e. your staff, at library

13. Do you have a modem at home?
    ☐ a. yes ☐ b. no ☐ c. don't know

14. Do you have a modem at the office or lab?
    ☐ a. yes ☐ b. no ☐ c. don't know

15. Do you have access to a FAX machine?
    ☐ a. yes ☐ b. no ☐ c. don't know

16. How experienced are you as a user of computer databases? Check ***only one answer.***
    - ☐ a. not at all experienced
    - ☐ b. not very experienced
    - ☐ c. somewhat experienced
    - ☐ d. very experienced

PROFESSIONAL PRACTICE INFORMATION

17. What is your **primary** work place? Check ***only one*** answer.
    - ☐ a. private practice
    - ☐ b. academic health science center
    - ☐ c. hospital or clinic
    - ☐ d. other, specify: ____

18. What is your **primary** professional activity? Check ***only one*** answer.
    - ☐ a. patient care
    - ☐ b. research
    - ☐ c. teaching
    - ☐ d. training (e.g. residency, fellowship)
    - ☐ e. other, specify: ____

19. Indicate the percent of your patient population which is described by *each* of the following:

	None	1-24%	25-49%	50-74%	75-100%
a. Mexican-American..........	☐	☐	☐	☐	☐
b. rural	☐	☐	☐	☐	☐
c. migrant workers.............	☐	☐	☐	☐	☐
d. over 60 years of age........	☐	☐	☐	☐	☐

20. Are you a member of any of the following **state** professional associations? Check *all* that apply:

☐ a. Texas Medical Association
☐ b. state specialty association
☐ c. county medical association
☐ d. other, specify: ______________

21. What medical libraries in Bexar County do you use?

____

22. What are the major shortcomings in the information sources or services available to you?

23. Please add any other comments you would like to make.

Thank you for your help.

Please return in the enclosed stamped envelope by July 9, 1990 to:

Virginia M. Bowden, M.S.L.S.
Library Director
Briscoe Library - UTHSCSA
7703 Floyd Curl Drive
San Antonio, TX 78284-7940

FINAL RESULTS OF BASELINE SURVEY - BEXAR PHYSICIANS
(162 QUESTIONNAIRES RETURNED)

QUESTION 1: USE OF INFORMATION RESOURCES

QUESTION	DAILY	WEEKLY	MONTHLY	RARELY	NEVER	N/A	MISSING
DB/SELF	5 (3%)	16 (10%)	33 (20%)	48 (30%)	31 (19%)	10 (6%)	19 (12%)
DB/LIB	1 (1%)	7 (4%)	25 (15%)	53 (33%)	35 (22%)	6 (4%)	35 (22%)
CONSULT	59 (36%)	42 (26%)	16 (10%)	18 (11%)	13 (8%)	5 (3%)	9 (6%)
PERSONAL	84 (52%)	38 (23%)	11 (7%)	8 (5%)	8 (5%)	5 (3%)	8 (5%)
CIR LIB	1 (1%)	4 (2%)	5 (3%)	19 (12%)	81 (50%)	39 (24%)	13 (8%)
HOSP LIB	1 (1%)	22 (14%)	26 (16%)	51 (31%)	35 (22%)	17 (10%)	10 (6%)
MS LIB	4 (2%)	26 (16%)	41 (25%)	62 (38%)	15 (9%)	6 (4%)	8 (5%)
TMA LIB	1 (1%)	0 (0%)	5 (3%)	19 (12%)	117 (72%)	11 (7%)	9 (6%)
CME PROG	1 (1%)	24 (15%)	58 (36%)	41 (25%)	24 (15%)	5 (3%)	9 (6%)
OTHER	0 (0%)	5 (3%)	3 (2%)	4 (2%)	10 (6%)	11 (7%)	129 (80%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 1: 2 (1.23%)

QUESTION 2: HOW ARTICLES ARE OBTAINED

QUESTION	NUMBER CHECKED
FROM LIBRARY	137 (85%)
FROM HOSPITAL STAFF	53 (33%)
BY MAIL FROM LIBRARY	34 (21%)
BY FAX FROM LIBRARY	8 (5%)
AUTHOR REPRINTS	47 (29%)
COMMERICAL REPRINTS	10 (6%)
DO NOT OBTAIN	7 (4%)
OTHER	19 (12%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 2: 2 (1.23%)

QUESTION 3: ARTICLES OBTAINED DURING A 6 MONTH PERIOD

NO. OF ARTICLES	NO. OF RESPONDENTS
-1 (MISSING)	12 (7%)
0	4 (2%)
1	8 (5%)
2	7 (4%)
3	12 (7%)
4	7 (4%)
5	6 (4%)
6	13 (8%)
7	2 (1%)
10	17 (10%)
12	3 (2%)
14	1 (1%)
15	4 (2%)
20	16 (10%)
25	1 (1%)

30	10 (6%)
40	6 (4%)
50	8 (5%)
60	2 (1%)
70	1 (1%)
75	3 (2%)
80	1 (1%)
100	12 (7%)
200	3 (2%)
250	1 (1%)
500	1 (1%)
9999 (RESPONSE NOT NUMERIC)	1 (1%)

QUESTION 4: LIBRARIAN MEDIATED MEDLINES

NO. OF MEDLINES	NO. OF RESPONDENTS
-1 (MISSING)	35 (22%)
0	39 (24%)
1	35 (22%)
2	14 (9%)
3	12 (7%)
4	3 (2%)
5	2 (1%)
6	7 (4%)
10	8 (5%)
12	1 (1%)
15	2 (1%)
16	1 (1%)
20	1 (1%)
24	1 (1%)
9999 (RESPONSE NOT NUMERIC)	1 (1%)

QUESTION 5: MEDLINES DONE BY RESPONDENT

NO. OF MEDLINES	NO. OF RESPONDENTS
-1 (MISSING)	42 (26%)
0	71 (44%)
1	16 (10%)
2	4 (2%)
3	3 (2%)
4	2 (1%)
5	6 (4%)
6	3 (2%)
10	4 (2%)
20	1 (1%)
24	1 (1%)
25	1 (1%)
30	2 (1%)
40	1 (1%)
50	3 (2%)
100	1 (1%)
9999 (RESPONSE NOT NUMERIC)	1 (1%)

QUESTION 6: WHY DO YOU USE MEDLINE?

QUESTION	NUMBER CHECKED
FOR PATIENT CARE	71 (44%)
DIAGNOSTIC CRITERIA	52 (32%)
PHYSICAL SIGNS INTERPRETATION	25 (15%)
TREATMENT RECOMMENDATION	76 (47%)
LAB TEST SELECTION/INTERP	21 (13%)
DRUG INFORMATION	38 (23%)
LOCATE SPECIALISTS	2 (1%)
PATIENT INFORMATION	15 (9%)
CONFIRM OPINION	39 (24%)
PREPARE LECTURE/PAPER	95 (59%)
LEARN NEW FIELD	51 (31%)
STAY CURRENT	68 (42%)
BASIC RESEARCH	34 (21%)
LEGAL/REGULATORY QUESTIONS	14 (9%)
OTHER	5 (3%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 6: 52 (32.10%)

QUESTION 7: DATABASES USED OTHER THAN MEDLINE

QUESTION	NUMBER CHECKED
MICROMEDEX	10 (6%)
BIOETHICSLINE	0 (0%)
TOXLINE/TOXNET	7 (4%)
CANCERLINE	8 (5%)
AIDSLINE	1 (1%)
PDQ	5 (3%)
CURRENT CONTENTS	5 (3%)
OTHER	8 (5%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 7: 131 (80.86%)

QUESTION 8: SYSTEMS USED TO ACCESS MEDLINE

QUESTION	NUMBER CHECKED
GRATEFUL MED	9 (6%)
NLM W/O GRATEFUL MED	3 (2%)
BRS/COLLEAGUE	5 (3%)
MEDLINE ON CD-ROM	4 (2%)
UTHSCSA miniMEDLINE	32 (20%)
OTHER	4 (2%)
DON'T KNOW	5 (3%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 8: 110 (67.90%)

QUESTION 9: HOW MEDLINE LEARNED

QUESTION	NUMBER CHECKED
TRAINING WORKSHOP	6 (4%)
COMPUTER TUTORIAL	4 (2%)
TRAIL AND ERROR	31 (19%)
FRIEND/COLLEAGUES	18 (11%)
MEDICAL SCHOOL ELECTIVE/COURSE	3 (2%)
OTHER	8 (5%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 9: 111 (68.52%)

QUESTION 10: REASONS MEDLINE NOT REQUESTED FROM A LIBRARIAN

QUESTION	NUMBER CHECKED
NOT NEEDED	21 (13%)
NO LOCAL ACCESS	8 (5%)
INCONVENIENT LOCATION	17 (10%)
INCONVENIENT HOURS	9 (6%)
HAVE TO WAIT TO GET SEARCH DONE	13 (8%)
UNSATISFACTORY RESULTS IN PAST	5 (3%)
COST	11 (7%)
NEVER HEARD OF IT	8 (5%)
OTHER	6 (4%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 10: 99 (61.11%)

QUESTION 11: REASONS FOR NOT DOING MEDLINE SEARCHES YOURSELF

QUESTION	NUMBER CHECKED
NOT NEEDED	15 (9%)
DON'T KNOW HOW	39 (24%)
NOT ENOUGH TIME	37 (23%)
LACK OF EQUIPMENT	23 (14%)
COST	14 (9%)
NEVER HEARD OF IT	8 (5%)
OTHER	6 (4%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 11: 70 (43.21%)

QUESTION 12: AVAILABILITY OF MICROCOMPUTER

QUESTION	NUMBER CHECKED
YOU, AT OFFICE OR LAB	85 (52%)
YOU, AT HOME	74 (46%)
YOU, AT LIBRARY	49 (30%)
YOUR STAFF, AT OFFICE	68 (42%)
YOUR STAFF, AT LIBRARY	33 (20%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 12: 34 (20.99%)

QUESTION 13: MODEM AT HOME

RESPONSE	NO. OF RESPONDENTS
-1 (MISSING)	2 (1%)
0 (NO)	116 (72%)
1 (YES)	38 (23%)
9 (DON'T KNOW)	6 (4%)

QUESTION 14: MODEM AT OFFICE OR LAB

RESPONSE	NO. OF RESPONDENTS
-1 (MISSING)	4 (2%)
0 (NO)	74 (46%)
1 (YES)	70 (43%)
9 (DON'T KNOW)	14 (9%)

QUESTION 15: ACCESS TO FAX MACHINE

RESPONSE	NO. OF RESPONDENTS
-1 (MISSING)	2 (1%)
0 (NO)	54 (33%)
1 (YES)	99 (61%)
9 (DON'T KNOW)	7 (4%)

QUESTION 16: EXPERIENCE AS USER OF COMPUTER DATABASES

RESPONSE	NO. OF RESPONDENTS
-1 (NO ANSWER)	8 (5%)
1 (NOT AT ALL)	66 (41%)
2 (NOT VERY)	46 (28%)
3 (SOMEWHAT)	32 (20%)
4 (VERY)	10 (6%)

QUESTION 17: PRIMARY WORK PLACE

QUESTION	NUMBER CHECKED
PRIVATE PRACTICE	82 (51%)
ACADEMIC HEALTH SCIENCE CENTER	42 (26%)
HOSPITAL OR CLINIC	26 (16%)
OTHER	16 (10%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 17: 4 (2.47%)

QUESTION 18: PRIMARY PROFESSIONAL ACTIVITY

QUESTION	NUMBER CHECKED
PATIENT CARE	118 (73%)
RESEARCH	10 (6%)
TEACHING	15 (9%)
TRAINING (RESIDENCY,FELLOWSHIP)	14 (9%)
OTHER	9 (6%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 18: 4 (2.47%)

QUESTION 19: % POPULATION

QUESTION	NONE	1-24%	25-49%	50-74%	75-100%	MISSING
MEXICAN-AMER	3 (2%)	49 (30%)	48 (30%)	40 (25%)	10 (6%)	12 (7%)
RURAL	13 (8%)	90 (56%)	15 (9%)	4 (2%)	1 (1%)	39 (24%)
MIGRANT WORK	80 (49%)	40 (25%)	0 (0%)	0 (0%)	0 (0%)	42 (26%)
OVER 60	21 (13%)	24 (15%)	46 (28%)	40 (25%)	12 (7%)	19 (12%)

QUESTION 20: MEMBERSHIPS

QUESTION	NUMBER CHECKED
TEXAS MEDICAL ASSOCIATION	119 (73%)
STATE SPECIALTY ASSOCIATION	85 (52%)
COUNTY MEDICAL ASSOCIATION	107 (66%)
OTHER	33 (20%)

QUESTIONNAIRES WITH NO RESPONSE TO QUESTION 20: 23 (14.20%)

QUESTION 21: USE OF MEDICAL LIBRARIES IN BEXAR COUNTY

143 COMMENTS RECEIVED (88% OF QUESTIONNAIRES)

QUESTION 22: MAJOR SHORTCOMINGS IN INFORMATION SOURCES AND SERVICES

72 COMMENTS RECEIVED (44%OF QUESTIONNAIRES)

QUESTION 23: ADDITIONAL COMMENTS

37 COMMENTS RECEIVED (23% OF QUESTIONNAIRES)

BEXAR COUNTY PHYSICIANS RESPONSES No. of respondents: 160
Surveys of July, August, October

1. For each information resource listed below, indicate how frequently you use them.
   i. other, specify:
      - Practical review in Int Med audiotapes - 100289
      - I do not know what Medline is. Other, City Library 49948
      - Brooks AFB Aeromedical Library - 68880
      - Lexis - 67217
      - science magazines - 39565
      - Audio Digest Surgery, 2 tapes each month; Audio Digest Gastroenterology, one tape monthly; Practical Reviews in Surgery, one tape monthly - 36584
      - Audio Digest - 67371

2. How do you obtain articles that are not available in your own collection?
   h. Other: specify -
      - drug companies 303554
      - TMA library - 38514
      - purchase books from book companies - 49948
      - Lexis - 67217
      - peers
      - BRS Colleague by myself - 59069
      - Medline - 53479
      - other colleagues - 101219
      - drug company reprints - 48756
      - drug detail personnel - 67371
      - go to another library and xerox the articles
      - interlibrary loan - through librarian - 304504

6. Why do you use Medline?
   h. Other, specify:
      - to assist my son in college prepare papers - 49724
      - do not use - semi-retired - 48808, 49207
      - for clinical research -67413
      - education of students/housestaff/nurses - 306955

7. If you use databases other than Medline, please indicate all that you use.
   h. Other, specify:
      - SilverPlatter - 312883, 314762
      - Lexis - 67217
      - Index Medicus - 66540
      - PaperChase - 45150
      - NLM Grateful Med - 309983

8. What systems do you use to access MEDLINE?
   f. Other, specify:
      - computer at Methodist hospital -49724
      - TMA, Austin - 52178

9. How did you learn to search MEDLINE?
   f. Other, specify -
      - Librarian - 61485, 61464,
      - someone does it for me - 66647
      - information provided by library - 101480
      - I don't feel I know how to use it to full potential - 201805
      - taught in 3 lecture series during residency in Emergency Medicine at BAMC -309983
      - did not learn - 50354, 304504
      - library staff at another setting - 304297

10. What are the major reasons for your not requesting MEDLINE searches from a librarian?

   i. specify:
      - Obtained through another hospital - 67595
      - some librarians appear inconvenienced - 39565
      - not trained to use it - 52174
      - lucum tenens - 37550

11. What are the major reasons for your not doing Medline searches by yourself?
   g. specify:
      - inconvenient - 61376
      - I have many subjects I would like to review - 201805
      - must leave clinical setting to go to the Library and specify databases that I want searched e.g. Mental Health NIMH database which was defunded in 1978 but has some key articles - 304297

17. What is your primary work place?
   d. Other, specify:
      - administrative medicine and US military - 49458
      - do some consulting in Occ. Med. - 48808
      - military medical center - 67413
      - business headquarters office - 315800
      - home - 61485
      - military hospital - 60631
      - health department - 43327
      - government laboratory - 68880
      - army hospital - 66540
      - School of Aerospace Medicine - 57933
      - ortho resident - 312309
      - locum tenens (live in San Antonio for transportation) 37550
      - semi-retired, rarely see patients - 50354
      - Wilford Hall - 48866

18. What is your primary professional activity?
   c. Other, specify:
      - administrative/nonpatient care 49458
      - consulting Occ.Med - 48808
      - administration - 315800, 43327, 51270, 38787, 67217
      - supervision of a residential treatment program for adolescents - 101480

20. Are you a member of any of the following state professional associations?
    d. specify:
    - National specialty association - 303554
    - Subspecialty association - 303554
    - American College of Surgeons - 36337
    - City specialty assoc. - 67413
    - Texas Osteopathic Medical Association - 60631
    - National organizations - 43327
    - TAFP - 32469
    - Bexar County Psychiatric Society - 39658
    - AMA, ABA, RSNA, ARLS, ACLM - 67217
    - Local specialty association - 40556
    - AMA, AUA - 47510
    - National Oncology Groups - 62646
    - AHP - 309639
    - Urological Society of San Antonio - 57890
    - County Sp. Ass. - 54879

21. What medical libraries in Bexar County do you use?

    - UTHSCSA Briscoe Library - 100
    - Brooks AFB Aeromedical library - 3
    - Brooke Army Medical Center/Sam Houston - 8
    - Baptist Memorial Hospital - 12
    - Brady Green Community Center - 3
    - Wilford Hall/USAF - 6
    - Methodist Hospital - 3
    - Santa Rosa Hospital - 2
    - Audie Murphy VA Hospital - 2
    - Medical Center Hospital - 2
    - San Antonio State Hospital - 1
    - Local hospital libraries - 5
    - UTSA - 7
    - SAPL - 3
    - None - 6
    - UTHSCSA Briscoe Library - 6
    - Baptist Memorial Hospital - 1
    - Local hospital libraries - 1

22. What are the major shortcomings in the information sources or services available to you?

    - I have no complaints - 67595
    - None - 36337
    - Hospital libraries are small and often do not have the desired journal. UTHSCSA Library is a little inconvenient to get to and a little intimidating to use. -47718
    - I think they are very good. 49866
    - Sources are excellent. Major difficulty is finding to time to use them. There are no experienced staff members to do it for you. 300886

- Time delay in acquiring needed references by mail - 100289
- It takes 3 or 4 days to obtain a search, and then another week to obtain the articles. Online retrieval of articles is very expensive, and the charts and graphs are frequently missing. - 58325
- Selection of journals is narrow in specialty of radiology; limited number of subspecialty texts in radiology; time it take to purchase/update new texts. - 60631
- no shortcomings - 304145
- Incomplete collection and not current books. The old books are good; it is nice to have some new books also - 49948
- I am satisfied - 66647
- I am satisfied with the services available to me. I view library resources as vital to good medical research - 68880
- they are good - 43934
- I am not close to them - 49096
- few journals regarding renal transplant - 309634
- my limited information as to what is available and making the effort to access it - 101480
- None - 313082
- not sure if all references have been found - 63722
- Almost none. Rarely, I must wait for a journal or book to be borrowed from another ,library for my use. - 39658
- none - 67217, 47925
- lack of time - 40556, 61464, 101927, 58460, 304548, 52705
- time to use them - 66540
- librarians seem too busy or something; so just do the work myself - 39565
- Collections not very large; this is somewhat offset by personal service - 314143
- I am satisfied with the sources available to me. Besides tapes, journals, hospital conferences, e.g. Camcer conference once weekly at Santa Rosa hospital. One American College of Surgeons meeting yearly - 36584
- Library services at Brooke AMC are in another building, removed from my office, teaching areas, and patient care areas. - 67099
- the time that I have to spend to go to the medical school library-54074
- no complaints - 313718
- computers; lack of librarians; assistance; time; parking - 57933
- tried to get medical books for check out but was denied until I was a Bexar County Medical Society member - 315632
- schedule - 38865
- time and location - 42236, 309983
- the way I use them - time consuming - 307345
- not being informed with what is available - 42414
- obtaining articles 75 years ago - 314215
- monthly meetings, magazines, medical congress - 50098
- lack of publicity - 302232
- cost - 61893
- some books and journals are not available in my interest areas - 42304
- slow - 55190
- I am happy with the service provided - 312357
- distance from office/house; parking; time; inconvenience - 61376
- I am please with access to information that exist now. Center of Excellence at Humana Hospital San Antonio is cooperative in obtaining literature searches and obtaining articles for me. I have not taken time to learn Medline because of this resource. I would subscribe to Library fax service

to obtain articles or quotations from text books if it was offered since it saves me time. 52174

- cannot access Medline on my Apple IIe computer
- Most journals and audio digest tapes are on Psychiatry; not General or Emergency Medicine - 67371
- I use journals and hospital staff meetings primarily for information - 4920
- Medline and miniMedline have always seemed to be "quirky" in their use of keywords. I can know an article exists and even know the substance of it and still not be able to find it. There are not enough cross referenced key words. It makes me think Medline was invented by a librarian and not a physician - 303066
- lack of need to use; availability; lack of knowledge of how to use - 45444
- No time and knowledge of using the programs. No modems. Secretary unfamiliar with library and systems - 201805
- No save function for miniMedline. No way to print miniMedline from the department computer - 305852
- Not readily accessible. I would enjoy using an access through the library at the Southwest and/or Lutheran General Hospitals where I practice if it were available - 302270
- Access to Medline often impossible because input does not accept SS# to log on. Library personnel are not oriented to/ very helpful towards the oriented private MDs who use the Library - 314762
- none. I am sure I could learn to use Medline if I needed it - 50354
- Pleased with recent acquisition of Grateful Med to run from my Mac - 45230
- I am happy with the resources I have available - 48866
- Orientation to the system not accomplished with ease. Specific orientation geared to new faculty with specific handout would be very helpful. This information could be part of the orientation packet geared to new faculty - 304297
- When I need information not in my journals, the mechanism for obtaining it without going to the library is unknown to me. It is time consuming to go in person. 62646
- My lack of knowledge in their use and time limitations in going over to the medical school - 57890
- Lack of training in computers. Will like courses after work hours - 54879
  Not enough international journals - 54879
- No computer at SASH library; no access yet to miniMEDLINE from SASH CRU 313789

23. Please add any other comments you would like to make.

- I have been pleased with Briscoe Library; journals, books, available. The librarians at the audiovisual area are very helpful but those at the checkout desk are often short tempered and don't appear to be enjoying their work. - 303554
- The UTHSCSA Library is very convenient and accessible to me. In my type of practice, I have wide nned for looking up articles which do not appear in the major surgical journals which I do receive and bind. - 49724
- Modem would speed access - 36337
- Residents do most of the literature review for us - 43781
- All the local private hospitals should offer practitioners free Medline searches and article copying as Methodist does. It is a fine PR gesture and much appreciated. - 47718

- Ideally, would like to be able to use miniMEDLINE services in my office or house.100289
- Thanks. 54289
- I use the UTHSCSA library and I am pleased with the help I get there - 37263
- While in the army, I performed approximately 3 Medline searches each week from my home. I would like to have access again. I have tried using CompuServe, but this is too slow, too complex, and too expensive. - 58325
- Very satisfied with the service according to my needs - 304145
- I like to use the library at UTHSCSA - 49948
- Thank you - 66647
- Ignorance on how to use them - 49096
- I will possibly be getting a personal computer in the near future, which may change my habits regarding the use of Medline (will increase use) 101480
- I use TMA Library, Austin 32469
- I have been very pleased with the library services available at Briscoe Library. Great selection of materials, up-to-date methods for obtaining citations, pleasant and effective help from library workers, and pleasant facilities make this an outstanding library. I feel fortunate that I have ready access to such a fine facility. - 39658
- I work as an ER doctor, have 2 small children, and a doctor husband - 314385
- I have an associate who helps me if I need literature search - 47510
- I did not know that the Briscoe Library was available to me. Will use it much more in the future - 314143
- Thanks for this endeavor -61464
- Left with an angry resentful feeling after trying to use the library when I first arrived here 8 months ago - 315632
- Would like more info about Medline and miniMedline and how could I make it available to me - 42414
- Journals I receive cover 95% of what I need - 61376
- miniMedline is an excellent resource used constantly by residents - 312309
- Would like to know how to use databases - 43011
- Have not had opportunity to use services and am not sure of access to some - 45444
- Some of the librarians at UTHSC are cross and difficult to work with. They act like they don't want to help me so I usually avoid them - 305852
- My hospital librarian gets all the informationm on articles for me. She is very good - 43520
- I am semi-retired and studying in other areas than medicine at present (humanities). I keep my license current, and follow new developments in "Scientific American Medicine" which is updated monthly, and a very good reference. I am sorry I'm not a very good survey subject for your purposes. - 50354
- TLC microcomputer LAN should be on"Plexus" - 45230
- I did not know I could use Briscoe Library. Please make the info available to all Bexar County physicians. How do I get a card or ID or whatever I need to check out materials? 304504
- Newsletter detailing library hours and specific activities and events is an excellent resource - 304297
- I'd sure like to find out how I could get Medline literature searches done by just calling the medical school library - 57890
- I recently completed my family practice residency at UTHSCSA. Are your library services available to me? 300639

APPENDIX C

BRIEF TELEPHONE SURVEY OF SELECTED CIRCUIT LIBRARY PROGRAMS

During January we conducted informal telephone surveys of seven libraries that had reported circuit library programs in the literature in the last twenty years. The brief interviews verified if the programs were still in existence and the number of participants. Because of time constraints, the following transcriptions have not been verified with the interviewees.

1. Central Maine Medical Center

Spoke with Maureen Fournier who now works with the circuit library program. Circuit program still exists in part. There are currently eight institutions in the circuit, the same institutions that originally joined the circuit under grant funding. The circuit librarian now visits the institutions only twice a year for $175 per visit per institution. Each institution has an identified library manager who have been trained in NLM searching, some of them have Grateful Med. Some hospitals still want searches to be done through the circuit program. These are charged through a "batch" rate, $550 a year for up to 25 searches, $950 (she wasn't quite sure about this last figure) for up to 75 searches.

On the hospital visits, the librarian meets with the library manager, the manager's supervisor and someone in administration which varies with each institution. The library managers perform their own ILLs using DOCLINE in most cases. Circuit program does not generally provide document delivery, this is done through the ILL process. State of Maine has some type of ILL network which all of the hospitals participate in.

When Central Maine Hospital does searches for the circuit program, NLM is used for the most part, although they use BRS and DIALOG a fair amount for ERIC and PsycLIT searching. They have SilverPlatter but only have one CD-ROM player and a 286 micro which is slow. Because of these factors, circuit searches are not done with CD system. They are planning to get more CD drives, then it might be reasonable to use for circuit searches.

She said it would be fine to use her name and quote in report. She would really like to have a copy of the report when it is completed, and said that one of the NLM Associates had been there for a time and had mentioned Briscoe Library and circuit. They would like to do a follow-up article to the one that was written in 1983.

Rajia Tobia

2. Cleveland Health Sciences Library

Spoke with Lillian Levine, who was once one of the circuit librarians but is now Assistant Director. In the best days of this program there were nine circuits which included 32 libraries. At the present time there is only one circuit with three hospitals. Circuits have always been self-supporting without any grant funding and over the years the hospitals have dropped out due to financial reasons or because a hospital may have developed a hospital library to the point where circuit visits were no longer needed.

For one half day circuit visit per week, the annual charge is currently $5,629. Mileage is additional charge. There are currently two hospitals which contract for half day service and one hospital that contracts for two full days per week ($22,516). The two day hospital will be cutting back to one day per week and is expected to drop out by July. If this happens the circuit will be defunct because the income will not be enough to support the librarian.

Searches are completed by dialing into NLM using a portable micro. The circuit librarian is close enough to Cleveland library so she can visit once a week to do most of the circuit's document delivery. Fax is also used. Documents are charged at $3 each. Bills for all charges are sent out quarterly. Searching costs are included in the annual fee for each library and are not billed separately.

This particular program did not place any emphasis on training library managers at hospitals.

Rajia Tobia

3. Rochester Regional Library Council

Kathy Miller explained that Rochester General is actually the base library, but she works for the network administrative unit. The circuit was originally eight hospitals, and is now seven hospitals as one dropped out due to financial difficulties. All hospitals are rural, the furthest one from base is 60 miles. Some hospitals are visited weekly, others biweekly. Circuit has existed since 1982.

One-third of the costs of the program is supported by New York state. An annual usage fee is also assessed to each hospital and is based on the previous year's usage. Billing is actually quarterly. Documents are provided through Rochester General and are: $1.00 for articles from their collection; $7.00/week for av checkout; $3.00/wk audiocassette; book use is free; ILLS-$4.00 each; online searches $5.00 minimum plus online costs; fax $.20/page outgoing, $.15 page incoming. Fees are added to the bills for the following year.

Ms. Miller has noticed a definite trend over the years for the hospitals to have financial difficulties. In some cases, their quarterly payments are much delayed and have even considered using a bill collector, although they have not had to do that yet. They use CD PLUS for most of their searches, but still use NLM occasionally. They are working on dial-in capability for CD PLUS so physicians can use it for self-service searching.

Their program has trained some library managers. Some physicians have been trained to use CD PLUS or GRATEFUL MED, but this is not a major focus of the program.

Rajia Tobia

4. Kellogg Health Sciences Library, Dalhousie University

I spoke with Betty Sutherland, Health Sciences Library Director. (She has only been there a year and a half, the circuit librarian is on sabbatical and will not be available until this summer).

The Dalhousie circuit was successful, however, the university felt it was an external program that could be self-supporting when the university suffered some cutbacks in funding from the province. So, Dalhousie no longer runs the circuit program. The circuit still exists as does a circuit librarian but it is funded by the three hospitals that participate in the circuit. One hospital of the three serves as the base hospital. Circuit covers the Annapolis Valley which is a rural area.

Dalhousie provides routine ILL services to the circuit program as they would for any other hospital library in their region. They provide some searches for a fee on databases which the circuit librarian does not search. Circuit librarian still does dial-up searches but will probably be getting a CD system when she returns from sabbatical, as part of a new library.

The circuit librarian is based in Kentville and travels to the other two hospitals in the circuit one day per week. Each of the two hospitals she visits has a clerk identified as a liaison for the circuit. The circuit librarian visits the Kellogg Health Sciences Library at Dalhousie about once every two weeks.

Ms. Sutherland did not really have much information about how the program is funded now since it is not part of Dalhousie, but she knows hospitals pay librarian's salary and travel. She would like to get a copy of our final report and she would like to see a draft of the report if we talk about their program extensively.

Rajia Tobia

5. Northwest AHEC Library at Hickory, North Carolina

I spoke with Phyllis Gillikan, AHEC librarian. This consortium began as a pilot project and has grown to four consortia, called UNIFOUR, spanning 17 counties. Current members include 29 hospitals, 31 agencies, 60 members in all.

The AHEC (which is now state funded) pays for one half of the cost of operating the circuit and member institutions pay for the other half. The administrators of the member institutions meet once a year to discuss goals for the next year and to vote on the annual budget. Costs include personnel, travel, cataloging, searches. Hospitals pay fees on a sliding scale depending on the number of circuit visits, which range from twice weekly to twice monthly. An example of a twice weekly hospital's fee would be $11,240 and a twice monthly would be $3,493.

Some of the hospitals have built up their own collections over the years. A union list is done for each consortium, which is fed into a larger union list for all 17 counties. Holdings information is available through DOCLINE and almost all of the institutions use DOCLINE for requesting documents. Most document delivery is on a reciprocal basis. Lending is done for non-consortia members for $4.00 in state and $8.00 out of state. Each individual institution does their own borrowing and lending, but AHEC collects money for lending.

UNIFOUR employs 2.1 FTE librarians. A grant from the Duke endowment has allowed UNIFOUR to purchase hardware and CD PLUS compact disc system for 24 not-for-profit hospitals as well as the Northwest AHEC, so much of the searching is done through a compact disc system. Previous to the funding from Duke endowment, searches were generally done through dial-up to BRS. The circuit librarians are now trying to teach the hospital liaisons and physicians to do their own searching using the compact disc system.

Some hospitals have dropped out periodically, but all have joined up again. They do have an associate member category which allows an individual to join the consortium for $60 per year. Because their consortium serves a number of educational institutions, students are charged $.05 per page for photocopying.

Rajia Tobia

6. Hospital Library Services Program, SUNY Buffalo

I spoke with Linda Birkinbine, Coordinator of the Hospital Library Services Program. This program, partially funded by the state of New York, is still in existence. For their 1992/93 year, which starts April 1, they expect to have 10 grant hospitals and 15 circuit hospitals. A grant hospital has regularly employed library staff, whereas a circuit hospital receives visits from circuit librarians.

She promised to send me last year's report and a draft of this year's as well as the formula the state uses for funding their program. New York has nine library councils and the state funds their circuit programs based on a formula which takes into account the number of inpatient beds in the region, the number of hospitals, and the number of square miles in the region.

State funding does not cover all the costs of the program, so a subcommittee of administrators meets to determine costs for the year. The difference between state budget and the remaining anticipated costs are divided among the hospitals according to bed size and number of visits. Most hospitals are visited once every two weeks, but some have visits once or twice a week. There are currently 2.7 circuit librarians employed by the Library Council.

The Library Council is housed at SUNY Buffalo but the university does not provide staff or money to support the program, they just provide space and some back-up from their reference librarians. Document delivery from SUNY Buffalo is charged at $8.00 per item and is billed to a deposit account for the council.

The circuit has had some "drop-outs" since 1986 due to hospital closure, merger or change of focus from acute care to nursing home care. One hospital is currently planning on replacing circuit visits with Grateful Med and Loansome Doc.

The formula for New York state is: $.75/square mile in region; $4,000/hospital in region; and $4.00.973/bed in region. For 1992/93, this formula would result in a $157,527 budget from the state, however, last year the state allocation was cut by 10.57%. Total costs for the circuit program last year were $224,000. Hospital paid portion of budget went up by 10% last year. They do not use CD-ROM for searching, they use dial-up. Linda would like to receive a copy of our report when it is finished.

Rajia Tobia

7. Robert Packer Hospital Library, Sayre, Pennsylvania

I spoke to Bob Pezdek. The hospital operates three circuits with 16 participants in Pennsylvania and western New York State, all hospitals plus a counseling service and a psychiatric hospital. They use SilverPlatter MEDLINE for most of their searching, and save repeat searches.

Virginia Bowden

APPENDIX D

PROMOTIONAL & TRAINING ACTIVITIES

Promotional and training materials developed for this project to study, "Medical Information Availability and Usage in South Texas," primarily focused on the GRATEFUL MED/South Texas MEDLINE Project.

This report include summaries of promotional activities, training efforts and sale procedures. The appendices include copies of newsletters, handouts, abstracts, feature articles and other items.

THE GRATEFUL MED/SOUTH TEXAS MEDLINE PROJECT:

A Chronological Summary of Promotional Activities

Nov. 1989	UTHSCSA Briscoe Library asks the National Library of Medicine to participate in the flat-rate MEDLINE project. NLM approves Briscoe Library participation as a test site with a projected start date of March 1, 1990. The project team includes Janna Lawrence, project coordinator, Evelyn Olivier, responsible for promotional activities, Anne Comeaux, technical advisor, and Mary Jo Dwyer, CLHIN-ST Librarian. Although all persons in the 512 telephone area code are eligible to participate, the counties of Bexar, Travis, Cameron, Hidalgo, Willacy and Starr will be targeted. A goal for the sale of 300 passwords is set and a package deal including unlimited access, GRATEFUL MED software and training is envisioned. The name, **GRATEFUL MED/South Texas MEDLINE Project** (GM/STMP) is selected. The project team makes plans to visit NLM in January.
Dec. 1989	Public relations activities begin in earnest with draft press releases, participant letters, application forms and flyers. The University of Washington's "Unlimited MEDLARS Access" promotional materials are reviewed as examples. A GM/STMP logo similar to the GRATEFUL MED software logo is suggested. January 24-26, 1990 is chosen for the project team's visit to NLM to discuss project details and to receive instruction from NLM staff.
Jan. 1990	Much information related to the GM/STMP is gathered at NLM by Janna Lawrence, Evelyn Olivier, Anne Comeaux , and Mary Jo Dwyer during visit. Several public relations pieces for the project are drafted following this visit as well as the project's objectives and strategies. A draft flyer and brief description of the GM/STMP is presented to Dr. John Howe, UTHSCSA President, at a Library Staff Meeting on January 11 and also to the Library Committee on January 17. On January 30 Virginia Bowden, Janna Lawrence and Evelyn Olivier meet with Susan Duncan, the UTHSCSA Coordinator for Continuing Medical Education, to set up three CME courses with AMA credit to teach physicians to use GRATEFUL MED and to make them familiar with the GRATEFUL MED/South Texas MEDLINE Project. The courses are scheduled for April, June and August 1990. A conference with UTHSCSA financial officers determines the need to charge sales tax for some GM/STMP components and to establish special accounts for this project. A meeting of area librarians to introduce them to the project is scheduled for February 7, 1990.
Feb. 1990	The GM/STM Project is announced to the UTHSCSA community on February 1 via the *Library News*. The orientation for librarians on February 7 attracts 12 area librarians and includes a presentation, handouts, a demonstration of GRATEFUL MED and a question and answer session. The staff of the Texas Medical Association Library are especially interested in the project and offer to help with both promotion and instruction. A three-

	fold generic brochure with logo and application form is sent to the UTHSCSA Print Shop as well as the brochure advertising the three GRATEFUL MED CME courses which is mailed to 6000 South Texas physicians. The original start date for the project of March 1 is postponed to April 2, 1990 due to the delay of Version 5 of the GRATEFUL MED software. A related NLM project to study the usage of medical information in South Texas is also proposed this month and details for promoting GM/STMP in South Texas are discussed with Mary Jo Dwyer. An exhibit booth promoting the project at the Texas Dental Association's annual meeting in San Antonio is scheduled for May.
Mar. 1990	In serious preparation for the April 2, 1990 kick-off date promotional activities included a combined flyer/application form placed in the March *Library News*, distribution of the GM/STMP brochure to area libraries, the receipt of letterhead stationery for correspondence, several signs, a banner for the Information Desk, flyers and other handout materials. Arrangements are made to place a GRATEFUL MED demonstration terminal near the Information Desk beginning April 2. The NLM project to study the availability and use of medical information in South Texas is discussed with NLM staff and a draft proposal is written.
April 1990	By mid-April more than 100 passwords have been sold and there are seven attendees at the April 28 CME course. The Texas Medical Association is helpful with getting state-wide coverage for the project in TMA publications. Virginia Bowden presents a brief description of the GM/STMP at the SCAMEL meeting in Dallas on April 17. A free demonstration/sign up session is planned for May 1 in Harlingen to attract additional South Texas participants. Other promotional activities this month include a demonstration terminal offering a free trial of GRATEFUL MED software plus daily half-hour demonstrations by library staff, a *UTHSCSA News* front page story on April 26 and National Library Week drawings for prizes such as copy cards, free MEDLINE searches and a GRATEFUL MED software package.
May 1990	More than 150 passwords have been sold by the end of May. Promotional activities include extending the demonstration terminal to a second month, the May 1 demonstration in Harlingen and a GM/STMP exhibit at the Texas Dental Association Conference on May 4. A display for the Library's exhibit cases is planned for mounting in the Library entrance foyer in July. Funding is received for the NLM study of the availability and use of medical information in South Texas.
June 1990	Approximately 170 passwords are sold by the end of June. PR items include another exhibit for the UTHSCSA Dental School Advance on June 1, a June 2 CME class attended by 8 participants and more work on the exhibit for the Library entrance foyer. Plans to present the GM/STMP project at library professional conferences are discussed by staff.
July 1990	Only 185 passwords have been sold by the end of the third month of the project. We begin to worry about making our goal to sell 300 passwords. A GM/STMP exhibit, complete with photographs and testimonials is mounted in the Library Foyer. A revised CME brochure is mailed to non-Bexar county physicians in July. Another project related to GM/STMP is introduced, the GRATEFUL MED/MS III project. A sign, flyer and application form are prepared for this project. A final mailing to all Bexar County Medical Society members is proposed.
Aug. 1990	More than 200 passwords have been sold, a second story is published in *Texas Medicine*, and 4 people attend the third and final CME class.
Sept. 1990	220 passwords are sold. Software sales total 40 MAC and 150 IBM GRATEFUL MED packages. A fourth CME class tentatively planned for this month is cancelled. Staff from the Medical University of South Carolina contact Janna regarding the details of offering a similar course in South Carolina.

Oct. 1990	230 passwords are sold. We wait to hear from NLM about plans to extend the program after the official ending date on April 30, 1991.
Nov. 1990	The decision is made not to pursue the final mailing previously proposed to all Bexar County Medical Society physicians. A series of Open Houses with information about the GM/STMP are planned instead beginning in January or February 1991.
Dec. 1990	Two Library Nights/Open Houses are scheduled for area physicians on February 7 and 20. 1000 physicians (approximately one of three) are invited as a test.
Jan. 1991	The text for an MLA contributed paper on the GM/STMP flat rate project is submitted.
Feb. 1991	27 physicians attend the two successful Library Nights/ Open Houses in February which included a GRATEFUL MED demo. Two more sessions are planned for April for the physicians in Bexar County who were not invited previously.
Mar. 1991	A grand total of 241 passwords are sold. A letter and questionnaire for GRATEFUL MED participants is prepared. The options for the future of the GM/STMP are: 1) continued participation in the flat-rate project under new NLM guidelines if 200 persons renew, 2) conversion to a regular password, or 3) discontinuing password.
April 1991	The GM/STMP program ends April 30. 144 responses were received to the questionnaire, indicating high satisfaction levels. However, because only 94 persons requested renewal, the flat-rate program was discontinued and all participants were notified.
May 1991	A paper entitled "Flat-rate MEDLINE access and unaffiliated health professionals in South Texas" was given at the annual MLA meeting.
June 1991	A poster session on the flat-rate project was presented at the annual ALA meeting.

THE GRATEFUL MED/SOUTH TEXAS MEDLINE PROJECT:
A Summary of Training Efforts

GRATEFUL MED CME classes were taught on April 28, June 2, and August 11, 1990. A total of 19 physicians attended these four-hour workshops, for which they received 4 AMA Category 1 credit hours. Participants could choose to buy GRATEFUL MED software and a password as part of the class, for $275. For $125, they received workshop instruction only. Although the attendance was disappointing, the classes were well received. Emphasis in this class was on gaining familiarity with MeSH and incorporating MeSH headings in GRATEFUL MED searches.

The opportunity to attend a 2-hour workshop was included in the purchase price for those who chose to buy GRATEFUL MED and a password. This workshop was scheduled frequently--as often as weekly in the beginning--and many other participants who could not attend the workshop were trained in one-on-one sessions. 107 participants were trained in these small group or one-on-one sessions.

Handouts were kept to a minimum for all training. Participants were encouraged to use the GRATEFUL MED manual and to go through the tutorial available to IBM users. Hands-on practice was an important part of all training sessions. Although "canned" exercises were available, participants were encouraged to work on their own searches.

THE GRATEFUL MED/SOUTH TEXAS MEDLINE PROJECT:

A Summary of Sales Procedures

GRATEFUL MED software and passwords were sold through the Library's Circulation Desk. Sales could be made anytime the Library was open. At the time of the sale, the customer filled out an application form with name, address, phone number, and specialty. They also checked off which package they were buying and how they would pay for the sale. If they bought the expanded package, they also indicated which class they would be attending. (Because of the frequency of classes, the checklist was updated monthly with new class dates.)

The customer signed a memorandum of understanding (MOU), and was given a copy. A label with the ID code, ELHILL password, and PDQ password was at the bottom of the MOU. The label was also placed on the Library's copy. On the back of the Library's copy was a short questionnaire asking the customer about their professional background and about their computer and database use.

Besides their password and software, customers also received a sheet on telecommunications access which listed all Tymnet, Telenet, Compuserve, and Infonet nodes in the 512 area code. The sheet also included an explanation of telecommunications networks, information on how to obtain the networks' 800 numbers, if necessary, and a few hints on successfully establishing connections.

Because of the number of staff, including several part-time evening and weekend personnel, involved in selling passwords and software, a checklist was formulated for the staff member to check as the sale was made. The checklist was on the reverse of the application form.

EO/JL/PH 10/11/91

APPENDIX E

SURVEY OF FLAT-RATE MEDLINE PASSWORD HOLDERS

1. Cover letter, dated March 26, 1991
2. Survey form
3. Password renewal form
4. Tabulation and comments

March 26, 1991

Dear ,

Your unlimited searching privileges of the National Library of Medicine's MEDLARS databases will end on April 30th with completion of the experimental Grateful Med/South Texas MEDLINE Project. We appreciate your participation in this project and hope that you have found it beneficial to your information needs. Through January, your password has been used for of searching.

As part of your participation in this project, you agreed to provide general information on your password use. We have enclosed a questionnaire which we hope you will complete for us by April 15th. Your answers will not be maintained with any personally identifying information and will be available only to the researchers in the study. Study results will be presented in the aggregate to the National Library of Medicine and will influence the future development of medical information services.

Since NLM has not concluded the analysis of the experimental project at several sites, they are offering us the option to extend the program *if* 200 passwords are renewed for the six-month period of May 1-October 31, 1991, at a cost of $150, with a maximum of $500 worth of searches instead of unlimited searching. If 200 participants do not agree to extend their passwords, all of the Project passwords will be cancelled. It is also possible to convert your Project password to a regular NLM password, for which you are billed monthly based upon your usage. If we do not hear from you, your password will be cancelled on April 30.

Please sign and return the enclosed form indicating your preference by April 15. Do not send payment with the form; if the Program is extended, we will bill you. If you know someone else who would like to participate in the Project under these terms, please have them contact us before April 15.

One last item: the IBM version of Grateful Med has recently been updated with the 1991 MeSH vocabulary. If you did not receive a copy of the free update disk, please contact me at 567-2425. I have extra copies and can provide you with one.

We are looking forward to hearing from you. If you have any questions or comments, please contact me at 567-2425.

Sincerely,

Janna C. Lawrence
Project Coordinator

Grateful Med/South Texas MEDLINE Project

March 25, 1991

This questionnaire will help the National Library of Medicine evaluate future development of the flat-rate access program. Your comments and suggestions are appreciated. Thank you!

PLEASE RETURN BY APRIL 15th TO
JANNA LAWRENCE, BRISCOE LIBRARY, UTHSCSA.

****

1. My MEDLARS user ID code is ______________.

2. What factors motivated you to participate in the Grateful Med/South Texas MEDLINE flat-rate access program? (Please be as specific as possible.)

3. Overall, how satisfied were you with the flat-rate access program?

Very Satisfied		Neutral		Dissatisfied
1	2	3	4	5

4. How experienced were you as a user of online databases BEFORE participating in this program?

Very Experienced				Not at all Experienced
1	2	3	4	5

5. How do you NOW rate your level of experience?

Very Experienced				Not at all Experienced
1	2	3	4	5

6. Using your flat-rate access code, how frequently did you use the following databases?

	Daily	Weekly	Monthly	Rarely	Never
MEDLINE/Backfiles	____	____	____	____	____
AIDSLINE	____	____	____	____	____
CANCERLINE	____	____	____	____	____
TOXLIT	____	____	____	____	____
PDQ	____	____	____	____	____
Other (list) ____________	____	____	____	____	____

7. Using your flat-rate access code, why did you search? (Check *ALL* that apply.)

____ for patient care (please specify)
 ____ diagnostic criteria or differential diagnosis
 ____ physical signs and symptom interpretation
 ____ treatment recommendations and modalities
 ____ lab test selection and interpretation
 ____ for drug information
 ____ to locate specialists for referral
 ____ to provide information for patient/family

____ to confirm an opinion
____ to prepare a lecture/paper
____ to learn about a new field
____ to stay current
____ for basic research
____ legal/regulatory questions
____ other (specify) __________
____

-MORE-

8. How many people besides yourself have used your flat-rate access code?

_____ None _____ 1 _____ 2-3 _____ 4-5 _____ 6 or more

9. How many searches have you done for other people with your flat-rate access code?

_____ None _____ 1-10 _____ 11-20 _____ 21 or more

10. How much do you think the flat-rate program was worth to you? $_______per search $_________per month

11. What do you think is a reasonable charge for the flat-rate program? $_______per year

12. Did you use Grateful Med software:
_____ Yes. Which version _______IBM _______Macintosh
_____ No. I searched using NLM command language (direct searching).

13. Did you enroll in a training class to learn to use Grateful Med or NLM search command language?
_______Yes Please specify: _____ Group training workshop _____ Friend/Colleague
_____ One-on-one training session _____ Brief Demonstration
_____ Computer tutorial _____ Trial-and-error
_____ Other (Please explain ______________________________)

_____ No If no, why not? ____

14. Did you find Grateful Med
_____ Very easy to learn _____ Somewhat difficult
_____ Moderately easy _____ Very difficult

15. What did you most like/dislike about Grateful Med?

16. Indicate all systems you have experience using:
_____ BRS Colleague _____CD-ROM systems (i.e., SilverPlatter MEDLINE)
_____ miniMEDLINE _____ Other (specify ________________________)
_____ AMA/NET _____ None of the above

17. Did your participation in the flat-rate program affect your use of any of the above systems?

_____ No significant change _____ Used these systems LESS _____ Used these systems MORE

18. Did your participation in the flat-rate program affect the number of MEDLINE searches run for you by a librarian?

_____ No significant change _____FEWER searches run _____ MORE searches run

19. Do you have any comments or suggestions about the program?

Grateful Med/South Texas MEDLINE Program Renewal

Since the National Library of Medicine is currently concluding the analysis of the experimental flat-rate project at several sites, they are offering us the option to extend the program under the following conditions:

(a) Password will be valid from May 1, 1991 through October 31, 1991
(b) Cost will be $150 with an automatic maximum of $500 of searching
(c) 200 participants must subscribe

We need to know if you wish to continue to participate in the flat-rate program under these conditions.

If you do not choose to continue to participate, you have two options: converting your password to monthly billing based on usage, or cancelling you password.

If you do not return this form, your password will be cancelled.

Please check one option, and sign and date this form:

☐ I would like to **EXTEND** my password through October 1991 for $150, with a maximum of $500 of searching

☐ I would like to **CONVERT** my password to a regular billed password

MEDLINE and most other NLM databases average $35 per hour weekdays, and $25.50 evenings and weekends. The average search using Grateful Med costs about $2.00.

TOXLIT and CHEMLINE are the major exceptions to these costs. TOXLIT and TOXLIT65 average $196.00 per hour; CHEMLINE averages $116.00 per hour.

☐ I would like to **CANCEL** my password completely.

X______________________________ ______________
Signature Date

____
Name (Printed)

____

____
Address and Phone

Please return this form **BY APRIL 15** to: Janna Lawrence
Briscoe Library
UTHSCSA
7703 Floyd Curl Dr.
San Antonio, TX 78284

Grateful Med/South Texas MEDLINE Project

TOTAL RESPONSES: 143

March 25, 1991

This questionnaire will help the National Library of Medicine evaluate future development of the flat-rate access program. Your comments and suggestions are appreciated. Thank you!

PLEASE RETURN BY APRIL 15th TO
JANNA LAWRENCE, BRISCOE LIBRARY, UTHSCSA.

****

1. My MEDLARS user ID code is ______________.

2. What factors motivated you to participate in the Grateful Med/South Texas MEDLINE flat-rate access program? (Please be as specific as possible.)

   See attached comments.

3. Overall, how satisfied were you with the flat-rate access program?

   Very Satisfied 1= 94
   2= 33
   Neutral 3= 7
   4= 6
   Dissatisfied 5=0
   No reply=3

4. How experienced were you as a user of online databases BEFORE participating in this program?

   Very Experienced 1 = 12
   2 = 24
   3= 31
   4= 31
   Not at all Experienced 5=44
   No reply=1

5. How do you NOW rate your level of experience?

   Very Experienced 1 = 37
   2 = 49
   3= 46
   4= 7
   Not at all Experienced 5 = 4
   No reply=0

6. Using your flat-rate access code, how frequently did you use the following databases?

	Daily	Weekly	Monthly	Rarely	Never	Did not respond
MEDLINE/Backfiles	15	56	44	16	8	4
AIDSLINE			6	18	75	44
CANCERLINE		1	12	9	80	41
TOXLIT		1	6	17	76	43
PDQ		1	4	6	87	45
Other (list) Serline Catline		3	7	2	45	86

7. Using your flat-rate access code, why did you search? (Check *ALL* that apply.)

58 for patient care (please specify)
- 50 diagnostic criteria or differential diagnosis
- 25 physical signs and symptom interpretation
- 61 treatment recommendations and modalities
- 24 lab test selection and interpretation
- 38 for drug information
- 4 to locate specialists for referral
- 24 to provide information for patient/family

31 to confirm an opinion
102 to prepare a lecture/paper
66 to learn about a new field
93 to stay current
92 for basic research
19 legal/regulatory questions
9 other (specify) see attached

-MORE-

8. How many people besides yourself have used your flat-rate access code?

79 None 32 1 21 2-3 5 4-5 1 6 or more

9. How many searches have you done for other people with your flat-rate access code?

67 None 55 1-10 7 11-20 8 21 or more

10. How much do you think the flat-rate program was worth to you? $ see attached per search $ ___ per month

11. What do you think is a reasonable charge for the flat-rate program? $ see attached per year

12. Did you use Grateful Med software:
121 Yes. Which version 84 IBM 41 Macintosh
11 No. I searched using NLM command language (direct searching).

13. Did you enroll in a training class to learn to use Grateful Med or NLM search command language?
61 Yes Please specify:
50 Group training workshop
3 One-on-one training session
2 Computer tutorial
1 Other (Please explain ___)
0 Friend/Colleague
2 Brief Demonstration
0 Trial-and-error

75 No If no, why not? see attached
7 did not answer

14. Did you find Grateful Med
75 Very easy to learn
43 Moderately easy
9 Somewhat difficult
___ Very difficult

15. What did you most like/dislike about Grateful Med?

16. Indicate all systems you have experience using:
19 BRS Colleague
92 miniMEDLINE
15 AMA/NET
57 CD-ROM systems (i.e., SilverPlatter MEDLINE)
18 Other (specify ___)
21 None of the above

17. Did your participation in the flat-rate program affect your use of any of the above systems?

61 No significant change 47 Used these systems LESS 15 Used these systems MORE

18. Did your participation in the flat-rate program affect the number of MEDLINE searches run for you by a librarian?

46 No significant change 77 FEWER searches run 6 MORE searches run

19. Do you have any comments or suggestions about the program?
See attached comments

2. What factors motivated you to participate in the Grateful Med/South Texas MEDLINE flat-rate access program? (Please be as specific as possible.)

- Good way to introduce to Medlar Search
- Access and use
- Relevance to research project; extensive database on biomedical engineering topics
- Training on software and searcing techniques; acquire software (Grateful M); acquire flat rate fee
- Recently acquired a PC; ease of access to large database; sounded like a "good deal"
- Opportunity for unlimited searcing for a set file
- Cost
- Cheap, easy, unlimited access
- Encourages use of searching more often
- Easy access to literature at home
- Curiosity
- Extraction of abstracts
- Copy of Grateful Med and Mesh in disk
- Cheap and easy access to Medline
- To have opportunity to become familiar with NLM searches; need for a more complete database.
- Wanted access for most current info to help in clinical practice.
- Update for research
- I am a frequent user and use attracted to the convenience of a flat rate program.
- Convenience of doing Medline searches in my office.
- To become exposed to Medline which I had not used.
- A reasonable flat rate cost.
- It was a good deal. I search at my desk usually several times a week. Use in preparing protocols (research) and articles.
- Previous use of the system; I thought I would use more than the $150 cost.
- Literature reviews for great proposals and publications.
  Reviews for clinical cases in neonatal intensive care unit
  Reviews for teaching topics to residents
- To determine if it was usable for me.
- Saves everyone time.
- Cost of service availability to search larger database at my convenience, usually at home.
- The ability to search for specific articles and/or topics in journals not accessed by miniMEDLINE. The flexibility of the system.
- Convenience, help with lecture/research preparation. Keep up with current therapy (too far to drive to Medical Center Library very often.
- Frequent need to find information for clinical practice, preparing lectures, and research.
- Inexpensive means of extending my use to home computer.
- Low cost. Ability to use Medline at my desk via network in department.
- To explore extent I would use Medline searches in clinical practice.
- The flat access rate and ability to do searches at my convenience at home.
- I have 20 radiologists that write papers and give presentations.
- To find literature searches for manuscripts, review articles we are writing; for finding references for manuscripts we serve as editors for.
- Research for thesis (public health); preparation for lectures
- AM-Net went out of operation. Low cost. Recommendation of TMA librarians when I took a class in Grateful Med.
- Availability of databases that are not on CD-ROM. Opportunity to search carefully and often, as often as needed, without having to worry about the cost of such time-consuming searching.
- Increased end user

- We want to make the service available to physicians and hospital staff, using the library computer.
- Opportunity to use it for ready reference.
- To use the service freely and familiarize myself.
- Desire to learn techniques of searching online databases.
- Price, give us chance for a trial.
- Motivated to learn the program for patient care.
- To have an experience using Medline for the first time; to organize references more thoroughly.
- Took group Medline course as it was available through course.
- Convenience, assured low cost and a conviction that medical information management is of critical and gorwing importance to every medical provider.
- Intended to use it to acquire abstracts to review the development of my research area. I haven't gotten around to it, but may do a search "binge" before April 30.
- Cheaper than having my own password; more convenient than using library help.
- Ability to search searches by myself; extremely reasonable cost.
- Wanted to be able to do Medline and similar searches at home on home computer during night and weekends, rather than come to the office or library.

6. Using your flat-rate access code, how frequently did you use the following databases?
Other:

Serline
Catline
Health
GM Bulletin Board
Bioethicsline
History of Medicine Line
Toxline
BBS
Avline

7. Using your flat-rate access code, why did you search? Check all that apply.
Other:

- Library work
- Ready reference
- To learn about background of scientists on review; to compile references to set up databases
- Practice
- Background information needed for FDA
- Get specific information which would not be likely to be accessible in miniMEDLINE
- Helping students learn Grateful Med; helping teachers doing research

10. How much do you think the flat-rate program was worth to you?

Per search:
$.25
$1.00
$1.50
$2.00
$2.50
$3.00
$5.00
$8.00
$10.00
$50.00

Per month:
$1.00
$2.00
$5.00
$10.00
$12.00
$15.00
$20.00
$25.00
$30.00
$40.00
$50.00
$70.00
$80.00
$100.00
$120.00
$150.00
$260.00

11. What do you think is a reasonable charge for the flat-rate program per year?

$30.00
$50.00
$75.00
$100.00
$120.00
$125.00
$150.00
$175.00
$200.00
$250.00
$300.00
$400.00
$500.00
$750.00
$1000.00

13. Did you enroll in a training class to learn Grateful Med or NLM search command language?
No
If no, what not?

- Time conflicts
- Had NLM week-long and follow-up training
- Not available in Austin
- Trouble to make time.
- Time constraints.
- Not aware but I need it badly.
- Never got called about class.
- Learned from colleague in department.
- Self explanatory manuals
- User friendly.
- I did not attend.
- Not enough time.
- Attended training class previously.
- Already familiar with Grateful Med
- I was already experienced.
- Previous training on Dialog at NLM
- Easy to use.
- Didn't think I needed it.
- Software is easy to use.
- Software documentation good.
- Circuit library staff demonstrated.
- Inconvenient
- Familiar with NLM search language
- Didn't know they were available
- No class in area
- Could not fit initial class into schedule and not aware of subsequent sessions

Yes.
Other:

- Took NLM training course and helped teach classes at the Briscoe

15. What did you most like/dislike about Grateful Med?

Like:

- Help choosing terms/feedback
- Easy to use
- Rapid search; convenience
- Ease of use; documentation was excellent.
- Convenience
- Ease of use
- Simplicity, yet expandable
- Thorough search; printed abstracts
- Ease of use; post-search review
- Time saving
- User friendly, no need to know MESH headings to do search since prompted by dictionary.
- Simple.
- Completeness of search.

- Rapid access.
- Easy to learn; interfaces with Reference Manager Software, able to download references without typing them in.
- Mesh thesaurus
- I like its simplicity; but it is difficult to find restricted subjects.
- Very good documentation.
- Good instructions
- Offline search strategy
- Retrieval of abstracts
- Turnkey approach
- Use of Mesh headings
- Produces results quickly
- Ready access to current medical information
- Compiles search offline to save costs

Dislike:

- 4 subject line limitation
- Limited MeSH headings on disk
- Choice of wording difficult to master
- Getting on/off line to Washington. Inability to conduct searches online.
- Down on Sundays.
- Difficulties in connections/disconnections mid-search.
- Manuals too scanty.
- Dislike mesh terminology
- Not enough mesh headings
- Line always busy
- Dislike having to search current before accessing backfiles; Losing search if press wrong key (esc vs. enter)
- Slow 1+1
- Not very versatile printing capabilities. I hate the MESH headings in the printing part of the program. I never print the MESH heading.
- Not such a great program. Unnecessarily restrictive.
- Can only do one search at a time.
- Program misses references, requires current file be searched before backfiles can be searched. Over writes "save" file when backfiles searched. Requires too many "Y" to query "Do you want more" in a long search. Not very "Mac-like"
- Not always able to get what I want.
- Numerous problems with initial backup to Telenet or Tymnet and inability to control once call started.
- Lack of flexibility such as Boolean "and not" search logic
- Somewhat inflexible in search opt, i.e. may want several options
- I would like to initially run a search back more than 2 years instead of running it twice.
- Occasional problems with search stopping in mid-search; difficult to start over again at times.
- When you search backfiles, it erased the most recent search which you have to do first before you can search backfiles.
- Spelling error lend to a lot of excess time in reentering.
- Not being able to apply multiple subheadings easily.
- MAC version needs upgrading; especially print module
- Having to redial the access number for each search; occasionally loosing previous search strategy.
- Crashes when many references are found
- Not too relevant to my field of radiology.
- When I had both the journal and date of publication, there was no easy way to find the abstract of an article.
- In the Macintosh version, you had to press the "Y" key on the keyboard to go on during a search.
- Technical problems with software connecting with system. Technical system had no answers; eventually solved problems myself.

- Installation instructions were confusing to me; telephone numbers seemed too often busy
- The Macintosh version has some limitations.
- Mac updates delay; frequent unsuccessful searches
- Very poor program; doesn't follow Mac user-interface rules; outdated Mesh file, buggy
- Technical support via NLM poor
- Occasional software errors aborted search
- User interface needs to be made more flexible.
- Grateful Med menu had too little options (search on variables available by direct searching)
- No chance to see number of references without doing separate searches. UTHCSA has new software that does search without backing out and starting over.
- Not being able to search two subjects at once.
- I disliked the constant attention required at the computer during search. I wanted the ability to que several searches to run sequentially.
- Having to redial to do another search. Return key sometimes did not work.
- Lack versatility and options.
- Need to redial to make a new search; request for number of users unnecessary and unremovable; no easy way to format results in a standard database readable file (like DB 3, lotus, etc.)
- It takes a while to learn the subheading terminology.
- Coverage of physiology journals is too incomplete.
- Setting up search in advance
- Have to go through entire cycle for backfiles.
- Text not available.
- Had trouble with the printer output.
- Did not like going back and forth between online and offline in order to narrow search.
- Having to scroll through listing to get printed document.

16. Indicate all systems you have experience using:

Other: Chemical Abstracts
BRS
Dialog
Epic
Compuserve
Micromedex
Internet
STN
PaperChase
Current Contents on disk

19. Do you have any comments or suggestions about the program?

- It is important to academic pursuits. I pay for it myself because I feel it is so important. Please keep the cost within reason.
- Need to have more online terminals available in the library. miniMEDLINE is essentially worthless. One problem with Medline is that need to switch files to search further back as opposed to a compiled system such as Dialog.
- This program made it possible for me to enhance both my research and clinical knowledge tremendously which I could not have afforded at per call charges.
- Great program.
- Excellent program.
- The program is poor. Support is poor. For example, I was never able to connect to the NLM BBS for help, and the people I talked to at NLM didn't seem concerned about this. The program does not allow efficient searches. My charges were much high than necessary because of search combination, restrictions of the program (e.g. only one author is allowed in search)
- It is nice but I did not use it as much as I would have liked to because of time problems.

- Please continue the program.
- I like the program. But there appears to be some significant incompatibilities between GM and certain modems.
- Fantastic program. Tremendous sense of power having Medline database at fingertips. I can't understand why all MDs don't use. Should be in all offices, clinic, hospitals. Thanks for allowing me to participate. I think results of your study are skewed because those who signed up are like me. With more universal use the average use would be far less and much less than my $600. Don't give up.
- Need tutorials at times clinicians can attend - it is very inconvenient for me during practice hours.
- Keep price reasonable.
- I have had a lot of use of the system. Would like to see it or some system like it continued.
- Flat rate is excellent idea and should be continued; allows more flexibility in searches. I believe that high rate of search of some will compensate for fewer searches of others. One should still have the option of flat vs. per search rate. It would be nice if persons in charge of the program (locally) had an indepth knowledge of the program to assist the subscribers.
- Great program; please continue this service.
- Keep it up!
- I hope the program will continue.
- I feel this is an extremely valuable program, particularly for people in medical teaching. I do a lot of writing at home and usually perform searches on Sunday morning while writing.
- Keep the low flat rate and you will keep your current users.
- I think the level of use will drop with future months. Flat rate is a good idea since it is less paperwork - thus direct billing/search.
- The flat rate definitely encouraged me to use my password more often and search the whole variety of databases available from MEDLARS. I'm really going to miss it!
- Excellent. Please continue at lowest flat-rate possible. It will encourage use by students, housestaff, fellows, etc.
- Need to learn more about effective search strategies. Often found no citations for topics I was certain were in the literature. Don't understand how to efficiently combine keywords and MESH terms. At other times I couldn't narrow search to the specific subject.
- The continuation fee of $150/6 months is an approx. 3 fold increase is criminal. First you encourage the enduser to search directly then you overcharge him. I may be wrong but I doubt 200 people can afford $300/year.
- Initial MAC software is somewhat cumbersome to use. When calling up the main NLM computer you are asked too frequently whether or not to continue search. Also, too much noise on the toll free line. This frequently interrupts the search.
- A pamphlet with a brief overview of command/search options or even a 2-3 pp. handout about all the formal training needed. The rest develops fairly quickly with experience.
- I would have signed up earlier but the program was not well advertised locally here. That may improve interest in future programs. I would have attended a tutorial class if one had been held at the medical school. Maintain local access with TeleNet, etc. Losing long distance access would severely reduce my usage of the system. Overall, I am a very a happy user of the Medline system.
- Great program! I just can't seem to run difficult searches (i.e. to find a few key articles) without getting very wide captions. I guess my experience with BRS taunted me to run it when GM failed (and I found it) I'm not sure if it's me or the different type of search strategy, in general GM was better./Sloan
- More print options; more format options. Ability to see just titles and then ability to go back and get abstracts. Ability to choose fields to print. I would have used this more if I had not run into technical problems at 2nd search. By the time I figured out how to solve problem (due primarily to lazer jet) the project time was almost over. I am willing to pass on solution because you may have others with the same difficulties. A brief synopsis of command language would be nice. I did not want to pay so much for the manual.

- This program allows me access to medical searches/literature as a clinician in an area where there is no medical library, no medical school. I am now able to do my own searches than requisition the material through UTHSC, San Antonio. It has allowed access to medical literature.
- This is an outstanding program. It allows access to a tremendously valuable resource which may have otherwise been non-affordable. The ability to use/learn this system has been one of the most significant events of my academic career. I strongly urge and support the continued option for a flat-rate, reasonably-priced GM access to NLM.
- A "trouble-shooting" guide should be included with the subscription. I had personal problems for looking each data when the library was shut down. I was never told this could happen and I lost a lot of time figuring out what was wrong.
- Use of Medline and backfiles is somewhat inconvenient, essentially two separate searches must be performed. Software errors occasionally very time consuming, loss of database required re-search.
- There should be more mechanism to give online feedback to the designeds of Grateful Med during a search. There should be some mechanism to decrease cost to put it within reach of students.
- I would have used the system much more if I had been able to obtain training on proper and efficient search techniques. I would still be interested in a training program.
- Program is outstanding. Price outstanding. Now that we are hooked I presume the price will go up and the usage down. This offer was a real service and much appreciated.
- I have unabridged Mesh in hard disk but the NLM Mesh book should be given to the Grateful Med users to facilitate the search.
- A switch to the cost/search basis will likely result in a reduction in the use of the system. The flat rate approach is much better. The newer version of Macintosh software is needed.
- Was unable to search many times because "network not responding". Would like to know if that means system was shut down or too many users or what. Suggest that the message be more specific so that searcher does not waste time trying to search when there will be a long delay.
- Too medically/clinically oriented to be useful to me. Retrieval format is clumsy.
- I cannot yet give a good assessment of the program. The computer I was to have access to did not become available immediately, and when it did it was located in a location difficult to readily access. I recently purchased my own computer/modem and anticipate much more use.
- Participation was based upon the assumption that a modem would be acquired, but Networking Resources told me that the university phone system would not support modems. Thus, use of Grateful Med proved to be impractical. Most of the databases are clinically oriented, while my interests are basic research.
- One thing I would like would be an easy way to look at a list of downloaded references and tell the program to get the abstract for particular ones.
- As a struggling Librarian/secretary, I have had little contact with resources to find out about available training in the Austin area. Jeannette Martin, 512-835-1971 Ext. 420.
- I would like to use 9600 baud rate modem if that fast speed is supported by NLM system. I would like to have an information on high speed communication for NLM. WBR 59
- Publicize it more aggressively.
- I like the flat-rate concept. It is comforting to know what the search/searches are going. Cost, instead of searching and then seeing the charges you just rung up.
- Good idea, but unfortunately I did not utilize it during this year for a variety of reasons (did not initially have a modem, etc.) Suggest that training workshops be strongly emphasized as component of program for new users.

rate MEDLINE access project showed that: (1) the project was successful in introducing users to GRATEFUL MED and the full MEDLINE database; (2) perceived value for price and convenience of access were the major factors in motivating people to purchase the flat-rate password; (3) the median reasonable charge recommended by participants for a flat-rate subscription was $150; (4) the use of the flat-rate password varied by professional training and academic affiliation. Thirty-seven statistical tables provide extensive information about information use and users. A consultant's report on medical information and availability, copies and results of physican information needs surveys, a description of promotional and training activites, and a copy of a survey of flat-rate MEDLINE password holders and the results are appended. (39 references) (KRN)